

ENVIRONMENTAL ASSESSMENT BOARD



ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

VOLUME: 179

DATE: Thursday, January 14, 1993


BEFORE:

HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

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ENVIRONMENTAL ASSESSMENT BOARD
ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARING

IN THE MATTER OF the Environmental Assessment Act,
R.S.O. 1980, c. 140, as amended, and Regulations
thereunder;

AND IN THE MATTER OF an undertaking by Ontario Hydro
consisting of a program in respect of activities
associated with meeting future electricity
requirements in Ontario.

Held on the 5th Floor, 2200
Yonge Street, Toronto, Ontario,
Thursday, the 14th day of January,
1993, commencing at 9:00 a.m.

VOLUME 179

B E F O R E :

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DR. G. CONNELL	Member
MS. G. PATTERSON	Member

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940.18	Ontario Hydro undertakes to provide a list of all proposals coming to Hydro's attention, formally or informally, from municipalities, including location and megawatts where not prohibited by confidentiality considerations.	31234
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940.20	Ontario Hydro undertakes to provide aggregate by customer class for the five years of the short-term forecast for the west system.	31296
940.21	(1) The data at the time of the hold, or if more convenient, as of the time of production of the data that appears in attachment F, how these under five megawatt projects are broken down, one, by type, and, two, by region; (2) A breakout of the type of NUGs reflected in chart under the categories of "gas-fired generation", "cogeneration", "hydraulic" and "small hydraulic".	31310

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1 ---Upon commencing at 9:00 a.m.

2 THE REGISTRAR: Please come to order.

3 This hearing is again in session. Please be seated.

4 THE CHAIRMAN: I have just got a couple
5 of small announcements first, Mr. Campbell.

6 In the exhibit scenario we have now given
7 numbers to two new exhibits, 1037 and 1038. They will
8 be listed in the transcript in the usual fashion.

9 ---EXHIBIT NO. 1037: Document entitled "Capital
10 Cost of Single-Unit CANDU
Stations", Michael J. McAskie,
11 January 4, 1993. (AECL)

12 ---EXHIBIT NO. 1038: Panel 3E - Hydraulic - Document
entitled "Cumulative Impact
13 Assessment", Fikret Berkes,
January 6, 1993. (Northwatch)

14 THE CHAIRMAN: This morning we will break
15 at 10:30, 10:30 rather than 10:45. One of our number
16 has to attend a meeting by conference call which isn't
17 expected to last more than half an hour but may last
18 that long, so the break might be extended to half an
19 hour.

20 Mr. Campbell?

21 MR. B. CAMPBELL: Thank you, Mr.
22 Chairman.

23 I would like to advise the Board that Mr.
24 Martin Campbell, who represents, as you know, the
25 Public Health Coalition, forwarded to me on January

1 10th a series of questions which he indicated to me
2 were the kinds of matters that he wished to inquire
3 into on behalf of his client in relation to this Panel.

4 We agreed that I would review these and
5 have a conversation with him about the answers that we
6 could or could not provide to the different questions.
7 I have gone through that exercise with him late
8 yesterday and, as a result of that conversation, having
9 outlined to him the general nature of the answers which
10 he will be receiving, he is content to receive those
11 answers in written form and has asked me to advise the
12 Board that under those circumstances he does not
13 propose to appear and cross-examine.

14 THE CHAIRMAN: Does that mean that those
15 answers will be filed as part of the evidence?

16 MR. B. CAMPBELL: We are quite content to
17 do that, yes.

18 THE CHAIRMAN: Thank you. Mr. Poch?

19 MR. D. POCH: Mr. Chairman, I have
20 provided the Panel of witnesses and the Clerk with a
21 document entitled "Breakout of Electric Space Heating,
22 Residential Sector in Ontario Hydro's Exhibit 796,
23 Attachment C, Load Forecast", which we have compiled.
24 And I am just going to turn to that now.

25 THE REGISTRAR: That will be given 1039,

1 Mr. Chairman.

2 MR. D. POCH: Thank you, Mr. Chairman.

3 ---EXHIBIT NO. 1039: Document entitled "Breakout of
4 Electric Space Heating,
5 Residential Sector In Ontario
Hydro's Exhibit 796, Attachment
C, Load Forecast."

6 MR. D. POCH: Thank you, Mr. Chairman.

7 AMIR SHALABY;
8 PAUL BURKE;
9 KEN SNELSON;
BRIAN DALZIEL; Resumed.

10 CROSS-EXAMINATION BY MR. D. POCH (Cont'd):

11 Q. Mr. Burke, I am going to very quickly
12 go through this and explain where the numbers were
13 obtained, and it is all based on the material you have
14 provided in Attachment C.

15 THE CHAIRMAN: Have you seen this before,
16 Mr. Burke?

17 MR. BURKE: I just got it a minute ago.

18 MR. D. POCH: I think, Mr. Chairman, as
19 we go through it it will be a very simple matter
20 certainly for Mr. Burke to follow.

21 Q. Mr. Burke, could you just take out
22 Exhibit 796, Attachment C, and turn to page 63.

23 Turning to table 1 in the exhibit we have
24 just filed, you can see what we have done there is
25 simply take the top three lines of your Table 3.1.2,

1 which are the space heating projections for the
2 residential sector, and included them in that first box
3 and totalled them.

4 Are you with me so far, Mr. Burke?

5 MR. BURKE: A. Yes.

6 Q. All right. Then, the next box is a
7 set of unit energy consumption, or what you call UEC
8 assumptions, and these are the -- let me make sure I
9 understand your definition.

10 This is the amount of energy you assume
11 each of those technologies use. And what we did there
12 is from page 67 of your exhibit - in the last paragraph
13 you discuss UECs for the different technologies - we
14 have made the simplifying assumption that the heat
15 pumps are in fact air source heat pumps, and I think in
16 a minute it will become obvious why that is a
17 conservatism that we have made in terms of where we are
18 headed with this.

19 But with that simplifying assumption, we
20 have simply taken the UECs which -- you have provided,
21 I think, the first and last years, and we have simply
22 spread them evenly amongst the -- because there is a
23 changing assumed deficiency we have simply sloped it.
24 So I am content if we only want to -- if you are only
25 comfortable with the first and last years, that is

1 fine, too, but just to explain how we filled in the
2 intermediate years.

3 Now, all we have done then in the last
4 box on Table 1 to calculate the number of households,
5 is divide the electricity demand in the top box by the
6 UECs in the second box.

7 Now, Mr. Burke, can you confirm that is a
8 reasonable way of getting an approximation of the
9 number of electrically-heated households by technology?

10 A. Whatever you get it is going to be
11 approximate for anything but the first and last year.

12 Q. Yes. We appreciate that.

13 A. I just want to see if I have any data
14 that can help me assess whether that is in fact a
15 reasonable estimate.

16 MR. D. POCH: Mr. Chairman, just while
17 Mr. Burke is looking, I just point out that we have
18 provided notes at the bottom of each page with the
19 sources for each entry and how the calculation was
20 done.

21 MR. BURKE: Well, I am not really in a
22 position to confirm whether these numbers are in fact
23 accurate, but in general terms the process of dividing
24 energy by the average unit energy per house and each
25 type should be in the ballpark.

1 MR. D. POCH: Q. All right. And you
2 accept that the numbers we have chosen, the energy and
3 the average unit energy by type, are the numbers you
4 have provided - at least for the first and last year
5 and we have done a straight line in between?

6 MR. BURKE: A. Yes the appropriateness
7 of using straight line in between I think is subject to
8 question.

9 Q. Fair enough. You are going to have
10 growth that is going to go up and down a little in
11 between. So --

12 A. Well, it depends very much on the
13 rate of growth of the new housing stock.

14 Q. Yes.

15 A. And what you have got is an average
16 unit energy consumption, and the new housing stock is
17 coming in considerably lower than the existing housing
18 stock. And so--

19 Q. Sure.

20 A. --the pace at which that happens and
21 the actual incidence of the new Ontario Building Code
22 and all that stuff is what really determines what goes
23 on between the beginning and the end.

24 Q. Sure. I appreciate that. We wanted
25 to give some kind of progression here. But what you

1 are telling me is you are comfortable with the first
2 and last years and you are just not -- the numbers for
3 the intervening years are going to be greater -- or
4 less accurate approximations; is that fair?

5 A. Yes, although I think I would like
6 to, given that this goes to a level of detail beyond
7 that which is in the evidence, reserve the ability to
8 come back on these numbers if it turns out that there
9 is something incorrect in what you have done here.

10 It seems reasonable to me now, but I will
11 have to check whether there is some reason why what you
12 have done is not appropriate.

13 What I was looking for is if I had the
14 total electrically-heated households that we have in
15 the forecast, and I do not have that information with
16 me so I can't check whether we in fact get the same
17 numbers you do.

18 Q. Well, just looking at the first and
19 last columns then, Mr. Burke, we calculated using your
20 numbers in the simple division that you have said is
21 acceptable that in 1990 we have got 488,000
22 electrically-heated homes in your forecast and by the
23 end of the forecast period, 2015, we have got 722,000,
24 it is almost 723,000 electrically-heated homes in
25 Hydro's latest scenario.

1 That conforms with your understanding of
2 where your forecast is headed?

3 A. Yes. Roughly speaking, yes.

4 Q. All right. And just with respect to
5 the heat pump line in that third block on Table 1, we
6 have growth in space heating with electric heat pumps
7 from 62,000 to 202,000. That conforms with your
8 understanding?

9 [9:12 a.m.]

10 A. Yes.

11 Q. And as I mentioned, Mr. Burke, we
12 have just assumed the UEC for air source pumps. If we
13 had assumed a lower unit energy consumption by
14 including some ground source heat pumps, which you in
15 fact you do, there would be even more homes in the 2015
16 column. That is the conservatism I spoke of; correct?

17 A. Slightly more, yes.

18 Q. Now, if you turn to Table 2, in the
19 top box we have taken your assumptions on the number of
20 market conversions that will take place, and can you
21 confirm by turning to page 67 again the numbers in
22 the -- at least in the white parts of that box, and,
23 again, we have done an interpolation in between.

24 Page 67, you indicate that there will
25 be - and this is in the middle of the middle

1 paragraph - 115,000 off electric space heating
2 conversions will occur in the existing home market -
3 that is in the existing home market - between '89 and
4 2015; and then you break it out as between electric --
5 central electric furnaces, baseboard, and otherwise.

6 A. Yes. I would emphasize that the
7 numbers in the load forecast document refer to
8 conversions in the existing market and --

9 Q. This is only dealing with homes that
10 are currently electrically heated, this has--

11 A. That's right.

12 Q. --nothing to do with homes that will
13 take on electric heating in the future?

14 A. That's correct.

15 Q. And you can confirm those numbers,
16 115,000 in total and the --

17 A. Yes.

18 Q. -- in the split between --

19 A. That is what we have got.

20 Q. Now, first of all, pausing there, can
21 you tell me what analysis you did to determine that
22 there would be 65,000 conversions from households that
23 have electric central furnaces to gas and 20,000
24 electric baseboard systems to gas and 30,000 electric
25 central furnaces to oil?

1 A. I don't think I can give you great
2 detail on that. I expect it will be described more
3 fully in the documentation forthcoming.

4 It is based on the calibration of the
5 model to the rate of conversions that have been
6 occurring so far. And a sort of relationship between
7 the -- a fuel choice equation that is calibrated given
8 the market experience of the last few years, and the
9 results of that are projected into the future, and it
10 would take into account things like the number of --
11 the relative price of electricity and gas and income
12 growth, I think, and various factors. But I couldn't
13 give you the details on that right now.

14 Q. Mr. Burke, what we then did in the
15 next box is we took the -- we went back to the previous
16 Table 1, the bottom box in the column for 1990, we took
17 the electrically-heated households that we have
18 distilled out of your forecast as the starting point,
19 the current electrically-heated households by
20 technology, and you can see that those numbers are
21 reproduced in the left column of the middle box in
22 Table 2. So in other words, we're taking the 488,000,
23 roughly half million, existing electrically-heated
24 homes divided by the technologies as you have indicated
25 and we simply deducted the conversions you have

1 indicated will occur, which we produced in the box
2 above, to get what is happening to the existing
3 electrically heated housing stock over the forecast
4 period. And, again, the middle years are our
5 interpolation and first and last years are the actual
6 distillation from your data.

7 Again, does that conform to your
8 understanding that basically you are forecasting
9 virtually all 95- of the 99,000 central electric
10 furnaces to fuel switch away, none of the heat pumps
11 and a small portion of the non-forced air, which is, I
12 guess, the baseboards?

13 A. That corresponds, yes. The only
14 point I would make is that the remaining total may not
15 be correct, because electrically heated households
16 disappear for reasons other than conversion, they
17 just -- there's a certain decay rate and I'm not quite
18 sure what that is in this model.

19 Q. All right. Excuse me for one moment.

20 And just to confirm, with respect to
21 the --

22 A. There is just one other point I would
23 like to make--

24 Q. Sure.

25 A. --about the existing...

1 It's important to understand that all the
2 while that the existing electrically-heated stock may
3 be converting from electricity to other fuels, there are
4 conversions going on in existing households from
5 electricity to a certain extent still to -- from oil --
6 sorry, from oil to electricity in this forecast.

7 Q. Yes. We are going to come to that in
8 a moment. We have just called that new electrically
9 heated households. But what you are telling me is that
10 some of those households exist, they are not actually
11 being constructed as --

12 A. Yes. Houses aren't being
13 constructed. They exist today, but the fuel changes
14 and it has an effect of -- well, what we call existing
15 households, it doesn't change as much as is implied
16 here.

17 Q. Now, just confirm for me that from
18 page 67 we took - and this is, again, right from the
19 middle of the page - for new housing, the
20 electrically-heated share, including heat pumps, will,
21 by 2015, still be achieving a 23 per cent market share
22 for electricity?

23 A. That's correct, yes.

24 Q. Now, Mr. Burke, in the bottom box on
25 Table 2 we have simply taken the total

1 electrically-heated households that we had calculated
2 in Table 1 and subtracted the remaining of the 1990
3 electrically heated stock that is in the middle of
4 Table 2 to separate out in your forecast what is
5 projected for the existing electrically-heated stock
6 and what you are projecting will be new
7 electrically-heated households.

8 And, again, can I ask you, does this
9 conform to your understanding? We did it by, again,
10 did it technology-by-technology and in total.

11 A. Well, we have probably accumulated
12 several approximations by this point, but conceptually
13 I don't -- the problem with the numbers.

14 Q. Okay. And the rough, not just
15 conceptually, but just in terms of where they are
16 headed, this kind of order of magnitude is in
17 conformity with your understanding of what is going on?
18 [9:23 a.m.]

19 MR. BURKE: A. Yes, by this point, but
20 conceptually I don't--

21 MR. D. POCH: Q. All right.

22 A. --have a problem with the numbers.

23 Q. Okay. And the rough -- rather
24 than -- and not just conceptually, but just in terms of
25 where they're headed, this kind of order of magnitude

1 is in conformity with your understanding of what's
2 going on?

3 A. Yes. By this point, I mean, we --
4 we --

5 Q. We perhaps should --

6 A. I don't have the numbers with me to
7 be able to confirm this, so I'm going to have to say
8 subject to check.

9 Q. All right. We're into six
10 significant digits here, and you maybe would be more
11 comfortable with two or three significant digits; is
12 that fair?

13 A. Well, I'm just going to have to
14 check.

15 Q. All right.

16 A. These are numbers that exist in the
17 solution, so there's an accurate representation --

18 Q. All right. But you don't have any
19 problem with our methodology here thus far.
20 Conceptually, you say you're comfortable, and we've
21 started with all your -- all the numbers are your
22 source numbers?

23 A. Yes.

24 THE CHAIRMAN: I'm having a little
25 trouble with your methodology, probably just because I

1 missed the point.

2 MR. D. POCH: All right.

3 THE CHAIRMAN: Take a look at Table 2.

4 MR. D. POCH: Yes.

5 THE CHAIRMAN: The line, Space Heating
6 Central Furnace.

7 MR. D. POCH: Yes.

8 THE CHAIRMAN: The 1995 figure of 80,301,
9 how is that derived?

10 MR. D. POCH: The 1995 figure of 80,301?
11 We've taken, Mr. Chairman, the initial stock that's --
12 which is 99,301, which is --

13 THE CHAIRMAN: 99,301, yes.

14 MR. POCH: Which is we had -- this is
15 from Table 1.

16 THE CHAIRMAN: Yes.

17 MR. POCH: And we've simply --

18 THE CHAIRMAN: Just a minute. Let me
19 find the 99,301.

20 MR. D. POCH: Yes.

21 THE CHAIRMAN: Where's that?

22 MR. D. POCH: The 99,301 is the number of
23 households.

24 THE CHAIRMAN: Okay. Right. Initially,
25 okay.

1 MR. D. POCH: And what we've done is in
2 the top box on Table 2, taken Mr. Burke's estimate of
3 conversions by the year 2015; we've just spread it out
4 evenly through the years, and that's in the top box,
5 that's the 95,000 figure he provided.

6 THE COURT: Yes.

7 MR. D. POCH: By 2015. We've spread it
8 out evenly through the years in the shaded section and
9 then --

10 THE CHAIRMAN: What figure are you using
11 then? 23,000 or --

12 MR. D. POCH: The -- I'm sorry. The
13 95,000 was provided on page 67.

14 THE CHAIRMAN: No, no.

15 MR. D. POCH: And then --

16 THE CHAIRMAN: I'm still concentrating on
17 the 80,301 figure,--

18 MR. D. POCH: Yes.

19 THE CHAIRMAN: --how you get that figure.

20 MR. D. POCH: That's the 99,000 starting
21 point less than the 19,000 in the box above for 1995.

22 THE COURT: Oh, I see. All right.

23 MR. D. POCH: By simply spreading the
24 95,000 evenly through the period.

25 THE CHAIRMAN: Okay.

1 MR. D. POCH: Mr. Burke has indicated it
2 may not be that even a progression--

3 THE CHAIRMAN: All right.

4 MR. D. POCH: --but we -- but by the end
5 we'll have -- he tells us we will have converted
6 95,000, so certainly by the end, we'll have gone from
7 99,000 to 4,000.

8 THE CHAIRMAN: Okay. All right. Thank
9 you. I understand.

10 MR. D. POCH: All right.

11 Q. Now, Mr. Burke, we just took out --
12 to sort out what's happening to the existing electrical
13 heated stock and what's happening -- what's new in the
14 electrically heated front, we then simply took the
15 difference between that second box on Table 2,
16 remaining electrically-heated households, remaining
17 1990 electrically-heated households, and deducted it
18 from what we've calculated on Table 1 from your figures
19 would be the number of new -- or the number of totally
20 electricly-heated households in your forecast, which
21 you've agreed is in the ballpark. And so we get -
22 let's call it a ballpark number to give you some
23 comfort - roughly between three and four hundred
24 thousand new electrically heated households in your
25 forecast?

1 MR. BURKE: A. That's about right; yes.

2 Q. That's about right. So in order of
3 magnitude, you don't have a problem with that.

4 Now, Mr. Burke, can you, first of all,
5 explain to me, you you've said --

6 A. Well --

7 Q. Did you want to add something?

8 A. Well, the only number I have with me
9 would suggest the average market share for new electric
10 houses is 24 per cent over the period 1991 to 2015, and
11 the total number of houses that we are adding is
12 970,000, so that through various approximations, and I
13 would have to check how this might have happened, but
14 it would seem to me that the data I have suggests we
15 would have about 250,000 new electrically-heated houses
16 over the period.

17 Q. You've just explained a minute ago,
18 maybe this is the confusion with the phrase "new," that
19 there also be additions from existing housing stock
20 that's on other fuels converting to electricity?

21 A. I see. So you've included those
22 under New here?

23 Q. Well, we've taken the remaining--

24 A. Okay. That's right.

25 Q. --off the total so I --

1 A. Yes.

2 Q. It would capture both kinds of new--

3 A. All right.

4 Q. --electric stock.

5 A. Okay. Fine.

6 Q. That is houses that are being
7 constructed and houses that are converting from other
8 fuels.

9 A. Okay.

10 Q. Okay.

11 A. So approximately in the ballpark,
12 yes.

13 Q. All right. Good enough for our
14 purposes today.

15 Can you tell me, Mr. Burke, why you
16 predict amongst the existing stock, and you made
17 reference to this at pages 3483, that there's quite a
18 conversion for the central electric furnace heated
19 existing stock, and you can see from the middle of
20 Table 2 that if we apply the conversion rate you've
21 told us about on page 67 for existing stock -- to the
22 existing stock, virtually all of the homes that are
23 heated with central electric furnaces, whether on the
24 gas grid or not, apparently are going to convert in
25 your estimate; yet, when we look at the new

1 electrically-heated homes, if you will, we find you're
2 adding 75,000 in; so as fast and as, if I may
3 editorialize a little, as economically rational as all
4 the centrally electrically-heated homes are -- home
5 heaters are in your system now, there's going to be
6 about the equivalent number of people who are foolish
7 enough to go to that uneconomic form according to your
8 forecast.

9 Have I got that right?

10 A. We're not trying in this forecast to
11 produce a scenario in which everybody does what is the
12 economically rational thing. We're trying to produce a
13 forecast of what people will do based on their behavior
14 to date, and there are instances where people would
15 like to have central electric furnaces, and they may be
16 largely in non-gas areas, and they may be in R2000
17 houses; and that just -- there's a range of -- of, oh,
18 to be typically -- all of these houses aren't R2000
19 houses, the new houses, so there is a range of
20 strategies people take to dealing with energy costs
21 depending on their circumstances, and just as there are
22 people in our forecast that are switching -- continue
23 to switch from oil to electricity for various reasons.

24 We're not suddenly assuming that the
25 various non-price factors that have led to these

1 choices over time suddenly disappear. We're just
2 saying that in some clear cases there will be a trend
3 to -- to conversion. When we start to see evidence
4 that no new central electric furnace are being built
5 anywhere, maybe we'll start to reflect that, but it
6 still is the case that there are new central electric
7 furnaces being built in this province.

8 Lots of baseboard-heated houses are going
9 in in non-gas areas particularly for the same reasons
10 that they've always gone in, low first cost perhaps,
11 small houses or -- and so on.

12 Q. Mr. Burke, on page 77 of your
13 forecast, you can see a table there of space heating
14 load and -- this is the commercial sector. Have I got
15 that right?

16 A. Yes.

17 Q. All right. And do I understand
18 that's correct that even after the impact of natural
19 fuel switching and new building standards that being
20 ASHRAE 90.1, that the heating requirement in the
21 commercial sector is expected to rise, electric
22 heating, from 3,600 gigawatthours in 1990 to 5,300 in
23 2015. That's what this is saying?

24 A. That's right. The heating load in
25 the commercial sector includes -- let me just check

1 here. Yes, there are all -- the analysis that was done
2 of the building type by building type, heating system
3 by heating system, indicates that there are -- the use
4 of electricity in heating systems is quite diverse in
5 the commercial sector. In some cases, it's perimeter
6 electric where that's the best way to do it. In other
7 cases, it's internal source heat pumps, ground source
8 heat pumps.

9 There -- it is very difficult to -- to
10 get efficient use of energy in a commercial building
11 for heating purposes without using some electricity in
12 the heating system; and while there is a significant
13 reduction in the amount of heating load in this
14 forecast compared to the one produced in 1990, there --
15 we -- one of the major differences that I've already
16 cited between the analysis for the potential for fuel
17 switching that we had indicated in Exhibit 258 and the
18 sort of information that's contained in this forecast
19 is it is not possible to keep electricity out of all
20 new commercial buildings.

21 [9:33 a.m.]

22 Rather than the potential that we had
23 identified before of 100 per cent possibility what we
24 are being told by our consultants is that 60 per cent
25 has to be there, that you could through economic

1 choices perhaps get rid of 40 per cent of the electric
2 space heating -- that for the new commercial stock.

3 That analysis should be described in more
4 detail in the supporting documents, but there is just a
5 large number of different types of heating systems that
6 combine the use of electricity and gas in a way that is
7 efficient and require the use of electricity in
8 commercial buildings --

9 Q. Mr. Burke, when you say you could get
10 rid of 40 per cent, that is the sort of -- that is the
11 potential--

12 A. That's correct.

13 Q. --economic?

14 A. Yes.

15 Q. And then you have an assumption of
16 what will happen either in the market or by programs,
17 and if it is by programs you assume a little less than
18 a third of that would be achieved; correct?

19 A. That's right.

20 Q. And in fact, you are not assuming
21 those programs; you are assuming that much at least
22 will be achieved in the markets so you don't even need
23 those programs to get a third of that 40 per cent
24 potential?

25 A. That's correct.

1 Q. All right. So is it fair to
2 conclude, having looked at the residential and
3 commercial briefly, those two sectors, that even with
4 the price differential with other fuels that you
5 project you are still expecting significant growth in
6 space heating for electricity?

7 A. No, I think my evidence was that the
8 primary load for space heating after our programs did
9 not grow in this forecast. What we have been looking
10 at so far is the basic load.

11 Q. Perhaps I should have been clear.
12 You still expect significant growth in space heating
13 amongst -- in the new stock, from new stock?

14 A. New stock have decreasing market
15 shares, but they are market shares. We get something
16 like 23 per cent of the new electrically-heated houses,
17 as you say which is down considerably from what the
18 1990 load forecast where we are getting an increasing
19 market share, and in the commercial sector we are
20 getting about 33 per cent of the new space heating
21 load, which is down about -- from 44 per cent in the --
22 well, I guess it is relative to the '89 forecast that
23 was used to produce Exhibit 258.

24 Q. Mr. Burke, I guess I don't really
25 understand what you are saying because if we turn back

1 to Table 1 of our exhibit the total number of
2 electrically-heated households in the residential
3 sector is growing from under a half a million to close
4 to three-quarters of a million?

5 A. Yes, but I'm talking load, and the
6 load per household is going down dramatically over this
7 period. As you can see from your own numbers, from --
8 if you look at the average use per household in 1990 to
9 2015 it is about 60 per cent of that by the end of the
10 period. So there is an increase in the number --

11 Q. I'm sorry, what are you looking at,
12 Mr. Burke?

13 A. Your Table 1, "Unit Energy
14 Consumption".

15 Q. Yes? And those are your numbers, Mr.
16 Burke?

17 A. That's right. And the average use
18 per household is going down quite dramatically over
19 this period.

20 In the new housing stock the average
21 consumption of a new house in 1991 is 11,000
22 kilowatthours and by 2015 the average new house is
23 using 7,000 kilowatthours. So you have a 42 per cent
24 reduction in kilowatthours per household. When you
25 combine that with increased number of households we

1 actually get the space heating load as you -- I think
2 if you -- for instance, on your table 3?

3 Q. Yes. We can turn to that if you
4 like.

5 A. I think you are getting roughly the
6 answer there, that the new electric heating load in
7 2015 is just under 4,000 gigawatthours, the existing
8 electric heating load is 4,700, so you have got a total
9 of about 8,700 there, right, compared to the starting
10 point, which was 7,300. And this doesn't include the
11 effect of fuel switching programs.

12 So at the end of the day you are going to
13 end up with a load for space heating in the residential
14 sector roughly the same as you started with at the
15 beginning of the period.

16 Q. You are not planning on any fuel
17 switching programs now, are you?

18 A. We have fuel switching programs in
19 this forecast.

20 Q. I'm sorry, but you have just pointed
21 out, you have confirmed the numbers in table 3, that we
22 are seeing an increase in the amount of electric heat
23 in energy terms.

24 A. In the basic load forecast.

25 Q. Yes. And you don't have any -- and

1 natural fuel switching is caught by these numbers?

2 A. That's correct.

3 Q. And you don't have any program-driven
4 fuel switching necessarily; at least, the current
5 assumption is you won't need any?

6 A. No, we definitely have program-driven
7 fuel switching in this load forecast.

8 Q. Oh, in the load forecast, you do?
9 Okay. My apologies. I am thinking back to Mr.
10 Shalaby.

11 A. Well, Mr. Shalaby is talking about
12 the short-term situation.

13 If you look at the load forecast you will
14 find that there is a -- well, I will see if I can find
15 for the year 2015, but for the year 2000 and 2005 in
16 the exhibit you show the number of programs, and most
17 of the fuel switching is in the residential sector that
18 we do through programs.

19 Q. And that is the box that in the
20 previous forecast was going to be 575 and is now going
21 to be 240; is that right?

22 A. Yes, I believe so.

23 Q. All right.

24 A. I think about half of that -- let me
25 just check here.

1 Q. I'm sorry, you are saying roughly
2 half of that is in the residential sector?

3 A. Yes. Maybe just a little -- about a
4 hundred megawatts -- are you looking at the year 2000?

5 Q. I am looking at 2000 because that is
6 the number you have provided.

7 A. About a hundred megawatts.

8 Q. A hundred megawatts. Just in energy
9 terms, heating is assumed -- what kind of -- most of
10 that is going to be resistance heating. So that is a
11 load factor of .29 I think we have been told in the
12 past?

13 A. That is about right. But actually
14 the load factor doesn't change that much whether it is
15 a heat pump or a...

16 Q. All right. So a hundred if -- have I
17 got it right? That is a hundred? A hundred megawatts
18 with that load factor would be roughly 250
19 gigawatthours?

20 A. Well, I will take that, subject to
21 check.

22 Q. That sounds to be in the ballpark?

23 A. Yes.

24 Q. So we might, for example, adjust that
25 number in 6,000 for heating total, which is 6,200

1 gigawatthours down by a couple of hundred gigawatthours
2 to take account of that fuel switching program?

3 A. Sure.

4 Q. All right. Thank you. Now, just
5 turning to attachment E for a moment, the Energy Price
6 Trends...

7 A. Maybe, Mr. Poch, if I could just
8 interject here? The estimate I have in my notes for
9 the year 2000 effect in terawatthours of fuel switching
10 is a total of 700 gigawatthours. That is residential
11 and commercial.

12 Q. And so if your 50 per cent
13 assumption -- I'm sorry, you were splitting that 240.
14 100 in the residential?

15 A. Yes.

16 Q. So of that -- and what was the number
17 you just gave me?

18 A. 700 gigawatthours.

19 Q. So maybe 300 of that then rather than
20 200 could be deducted from our 6,200 number?

21 A. Yes. My estimate of the total space
22 heating load plus residential water heating load in the
23 year 2000 -- and I think this is maybe where there may
24 have been some confusion in the assertion that I was
25 making, that the -- it is really the heating load that

1 is kept constant in this forecast.

2 So the sum of residential space and water
3 heating plus commercial space heating, those things
4 that we had fuel switching programs for, that is what
5 remains constant.

6 You will find there is significant
7 reduction in water heating load in this forecast. So
8 you may have seen some sort of increase in space
9 heating, but the water heating load is coming down
10 significantly and --

11 Q. So, Mr. Burke, just to be clear then,
12 you are modifying your answer somewhat. That 240
13 megawatts, that is mostly in the water heating and in
14 the commercial sector as opposed to the residential
15 space heating?

16 A. No. The fuel switching programs that
17 are for residential space heating, the natural fuel
18 switching there is a large component still not included
19 in what we have discussed today, which is residential
20 water heating.

21 Q. But we are not discussing water
22 heating right now, we are just talking space heating.

23 A. You may not be, but I think you are
24 trying to ask me to make comparisons to statements I
25 have made concerning--

1 Q. All right.

2 A. --the trend in the heating load.

3 Q. Okay.

4 A. And my comments, just to be clear,
5 were related to those things for which we previously
6 had fuel switching programs, which was residential
7 space and water heating and commercial space heating,
8 and where we end up with -- my claim is that the
9 primary load in those end uses is flat in the forecast.

10 Q. All right. Mr. Burke, I misspoke
11 myself a moment ago. When I said we deduct that 200 or
12 300 gigawatthours, which you say is fuel switching and
13 is program-driven in the year 2000, I said deduct is
14 from the 6,000. In fact, that would be deducted from
15 the roughly 88,200 totally new and old on table 3;
16 correct?

17 A. Yes.

18 Q. Now, I was asking you to turn in
19 attachment E of 796 to page 45, and I just wanted to
20 compare -- just note that your price, adjusted price
21 trend lines for high efficiency gas furnace versus --
22 or, indeed, gas heat pump versus all-electric heat pump
23 which is in the last column -- the high efficiency gas
24 furnace is the last column of the first block,
25 all-electric heat pump being the last column of the

1 second block, and gas heat pump being the penultimate
2 column in the second block.

3 You can confirm for me that whether one
4 goes with a single-fueled system or dual-fueled system
5 in either case the gas remains cheaper through the
6 forecast period than the all-electric heat pump?

7 A. Yes.

8 Q. And you spoke --

9 A. For operating costs.

10 Q. Yes, of course. What assumption are
11 you making about what is going to happen to the
12 availability of gas in areas now not served by gas? I
13 am thinking where there is new housing stock being
14 built in the Greater Toronto Area. Are you assuming
15 the gas grid will be expanded or not?

16 A. Well, I don't have the exact
17 assumptions with me, but -- I'm not sure whether they
18 are given in this document, but I think the gas
19 availability area is expanded for new stock, but I
20 believe we don't exceed 75 per cent of the cases
21 where -- 75 per cent of the market having gas available
22 to it for the new market.

23 Q. You are assuming 25 per cent of the
24 new market will remain to be in non-gas served areas?

25 A. Yes.

1 Q. Okay. You will just tell us if that
2 was incorrect? Since I appreciate your doing that from
3 memory.

4 DR. CONNELL: Is that changed?

5 MR. BURKE: I think 70 per cent or
6 something between 65 and 70 per cent is where we stand
7 now for the new market. The average for the province
8 is something less than 50 per cent, but...

9 DR. CONNELL: That is the number I was
10 recalling.

11 [9:58 a.m.]

12 MR. BURKE: Yes. But I think for the new
13 market, the incremental availability of gas is around
14 70 per cent and the new -- the electricity market share
15 that we are getting is a share of the houses in -- is
16 dominated by houses in non-gas areas.

17 MR. D. POCH: Q. Now, I take it that
18 despite this growth that we have just looked at in,
19 certainly in households that are going to be
20 electrically heated, even though you have pointed out
21 that those households, the efficiency of heating will
22 improve over time, but this growth from under half a
23 million to close to three-quarters of a million of
24 households, despite that you are saying that this
25 mandation is not an appropriate policy, it is not, in

1 your words, either warranted or required?

2 MR. BURKE: A. I guess the basic lines,
3 I see no one with any intention to do any mandation at
4 this point, and the rationale for it is that in the gas
5 available areas, the market share of electricity is very
6 small, and therefore, it's not warranted to enact rules
7 to govern that first small portion of the market that
8 is adopting electric heating in gas areas.

9 And in the non-gas areas, with the
10 introduction of the Ontario Building Code, so that when
11 new electrically heated houses are going in, they must
12 go in at an efficient level and face front end costs
13 associated with meeting the building centre, there is a
14 feeling that is enough of a disincentive for the use of
15 electricity in the non-gas areas, and anybody who
16 chooses to go ahead with building electrically heated
17 house under those circumstances is free to do so.

18 Q. Mr. Burke, I take it my numbers are
19 correct -- actually I have an exhibit here which will
20 help us.

21 Perhaps I could hand out now a couple of
22 pages which were photocopied from your quarterly
23 report, 1992, third quarter, which we have obtained
24 just yesterday, in fact, from the Public Information
25 Centre at 700 University Avenue.

1 A. One step ahead of me.

2 THE CHAIRMAN: You say "your quarterly
3 report" you mean--

4 MR. D. POCH: Hydro's.

5 THE CHAIRMAN: Ontario Hydro's quarterly
6 report?

7 MR. D. POCH: Yes.

8 THE REGISTRAR: That will be 1040.

9 ---EXHIBIT NO. 1040: Two pages from Ontario Hydro's
10 quarterly report for 1992,
third quarter.

11 MR. D. POCH: Q. First of all, if you
12 look on the back of the two-sided piece, and it is page
13 15 of the brochure, the last paragraph, it is noted
14 there that there are about 250,000 electrically heated
15 homes in Ontario that could switch to alternative fuel
16 for space heating.

17 That's about right, Mr. Burke?

18 MR. BURKE: A. Well, I think the number
19 250,000 sounds a lot to me like the number we had in
20 Exhibit 258, and with the addition of the oil market,
21 let's see now. Now, I would have to check what they
22 mean by "could switch to alternative fuel for space
23 heating." I'm not sure that that means it's economic
24 or what.

25 I mean, I think you have all the numbers

1 here for how many households are in Ontario and what
2 they are heated with and...

3 Q. All right. And you have already
4 agreed that -- you have already provided us with the
5 number that you are planning to fuel switch, the
6 planning that the market will switch 115,000 of the
7 existing stock?

8 A. Yes.

9 Q. So you have referred to this 100
10 megawatts by 2000 that is in addition to what the
11 market is going to do, that you are projecting fuel
12 switching programs will do in the residential sector;
13 can you just give me an idea how many homes that is
14 through this period? Perhaps to 2015, can you give us
15 an idea how many homes you imagine switching through
16 programs?

17 A. If I can't come up with the number
18 quickly, I'll have to--

19 Q. I'm happy to take an undertaking.

20 A. --give you an undertaking on that.
21 Let me just see.

22 THE REGISTRAR: Undertaking No. --

23 THE CHAIRMAN: Hold on a minute. We have
24 got to wait to see if he can find the answer.

25 MR. BURKE: By 2015 we have a total of

1 125 megawatts of attainable induced fuel switching in
2 the residential sector. I think it would be
3 approximately correct to use an average of 5 or 6
4 kilowatts a house, so we're dealing with 20- to 25,000
5 households in addition.

6 MR. D. POCH: Q. And that 125 megawatts,
7 that was just the space heating fuel switching or is
8 that fuel switching alone?

9 A. Oh, you are right. No, there will be
10 almost no water heating. No, it must be space heating.
11 There would be almost no programs for water heating.

12 Q. So perhaps the natural and the
13 induced might come to 150,000 by 2015?

14 A. Yes. I think one of the things you
15 have to remember in the course of all of this is that
16 the -- we have introduced a new building code for the
17 new stock, so that the basic load forecast is including
18 very efficient stock for whatever is built. It keeps
19 the space heating load growth down in the residential
20 sector where fuel switching does not occur.

21 Q. There we are talking about new stock
22 where the difference in up-front costs is not as great
23 to choose between competing fuels. You are not
24 abandoning your capital and having to install a whole
25 new system; right?

1 THE CHAIRMAN: I'm sorry, I didn't quite
2 follow that question.

3 MR. D. POCH: Q. The comment, Mr. Burke,
4 you just made about improving the standard of the shell
5 of the building, that applies to new stock?

6 MR. BURKE: A. Yes. The Ontario
7 Building Code applies to new stock.

8 Q. And in a new stock situation, we are
9 not talking about a -- someone having to incur the
10 up-front capital costs where they already own a heating
11 system, it is a choice at the outset between maybe a
12 builder or maybe the public between the up-front
13 capital costs of the two competing options?

14 A. That's quite right. And in the
15 existing households the baseboard heating systems for
16 electric, there is a significant capital cost to
17 conversion to another fuel, which we have discussed.

18 Q. We have discussed.

19 A. In fact, we even find it not to be
20 economic to offer programs for that conversion.

21 Q. Mr. Shalaby, you spoke of offering
22 information. Are there any brochures yet available to
23 tell customers about the relative cost and the
24 environmental impact of electric heating versus other
25 options?

1 MR. SHALABY: A. We have seen brochures
2 in this hearing on alternative costs of heating
3 systems. Now, I don't know whether there are Ontario
4 Hydro brochures, they're certainly government-issued
5 brochures that --

6 Q. Well, you have indicated that Hydro
7 is going to be providing information, could you
8 undertake to provide us with whatever brochures you are
9 providing customers who enquire about electric heating
10 or heating in general?

11 A. Yes.

12 Q. Thank you.

13 THE CHAIRMAN: That will be a new number.

14 THE REGISTRAR: 940.16.

15 ---UNDERTAKING NO. 940.16: Ontario Hydro undertakes to
16 provide brochure they would provide to
17 customers who enquire about electric
heating/heating in general.

18 MR. D. POCH: Q. Just one further area
19 in this -- question in this area.

20 Mr. Burke, I think this is for you, if
21 you turn to page 67 again of the load forecast.
22 Looking at the third last line on the page, I will read
23 the sentence:

24 Moreover it is predicted that many
25 households will slightly lower their

1 thermostat settings as a result of the
2 increase in the price of electricity
3 during the forecast period.

4 This is this residential sector you are
5 talking about?

6 MR. BURKE: A. Yes.

7 Q. If you turn to page 77; and this is
8 the commercial sector, I think you agreed earlier.

9 A. Yes.

10 Q. The last line on the first paragraph,
11 you are talking about internal heat gains through --
12 presumably, from other appliances and so on, and you
13 say: And that would decrease the heat -- the demand
14 for heating.

15 And you say: These decreases will be
16 partially offset in some sectors by longer operating
17 hours, and increased emphasis on comfort.

18 Now, have I understood you correctly here
19 that you are saying in this scenario that you expect
20 people to turn down their thermostats at home, but to
21 turn them up at work?

22 A. No. I'm not sure that that is what
23 you can conclude from that. I would have to check, but
24 I would think that what we are talking about here is
25 more ventilation rates, and fresh air, that sort of

1 thing.

2 Q. And several times you have indicated
3 there is going to be background documents coming out,
4 that would include the long-range economic forecast and
5 the physical unit forecast?

6 A. At this point, we had in this
7 document indicated that the sorts of residential,
8 commercial, industrial reports we produced the last
9 time would be produced.

10 The physical unit forecast exists, but I
11 would have to go back to check whether a report on it
12 will be available on the same schedule. It's not
13 produced by my department.

14 Q. Could you simply undertake to provide
15 us with the physical unit forecast, including the
16 physical unit --

17 THE CHAIRMAN: Well, I thought Mr.
18 Campbell had given a blanket undertaking of all
19 documents of that nature.

20 MR. D. POCH: Well, then, perhaps I
21 should just put on record, we are interested in the
22 physical unit forecast and the physical unit output
23 behind industrial forecast.

24 And I guess what I just heard, Mr.
25 Chairman, is Mr. Burke saying it may not have been

1 published in a report, and I think Mr. Campbell will be
2 providing us with whatever is published.

3 Q. That for us is a very valuable
4 information, Mr. Burke. If it is not published, would
5 it nevertheless be compiled for internal purposes?

6 MR. BURKE: A. I think what I am saying
7 is, I'm not sure when I will have the physical unit
8 forecast, but I'm sure we can obtain the physical unit
9 forecast underlying the industrial end-use forecast.

10 It's not a product of my department,
11 therefore, I am not so confident in its production
12 schedule.

13 Q. Well, you used it to do the end-use
14 forecast, didn't you?

15 A. Yes, we just used the numbers. We
16 don't need a report that's suitable for...

17 Q. No, I'm not necessarily asking for a
18 nice glossy report, Mr. Burke. We are content with
19 just the tables, as long as they are understandable.

20 A. Fine.

21 Q. Could we get those?

22 A. Yes.

23 Q. Thank you.

24 THE CHAIRMAN: Perhaps we should have a
25 number for that.

1 MR. B. CAMPBELL: I think so.

2 THE CHAIRMAN: New number?

3 THE REGISTRAR: 940.17.

4 ---UNDERTAKING NO. 940.17: Ontario Hydro undertakes to
5 provide tables relied on for the physical
6 unit forecast and the physical unit
7 output behind industrial forecast.

8 [10:03 a.m.]

9 MR. D. POCH: Q. And, finally, before I
10 turn to an entirely different topic, in Exhibit 796,
11 the main exhibit, on page 5, you were discussing energy
12 management, and I know this was referred to earlier,
13 but I didn't quite catch your answer, Mr. Shalaby.
14 There's, I think it's the fifth bullet point. You say:

15 Hydro's energy management delivery
16 efforts are now more focused on customer
17 needs and market requirements rather than
18 having a technology or a product-driven
19 focus.

20 Could you elaborate what's new about
21 that, what that means?

22 MR. SHALABY: A. There's nothing new
23 about that. That's something we've done in various
24 market segments and in various programs before. We
25 think it's a winning way of increasing the energy
management penetration in the marketplace, and we want

1 to expand that to other -- to other marketing efforts
2 that we earned.

3 Q. Could you explain to me what you mean
4 by it?

5 A. What I mean by that, in a simple
6 term, for example, is a technology or product based
7 focus would be to develop an efficient light bulb or an
8 efficient heat pump and then go and look for buyers for
9 it, people who could use it. That would be the product
10 or technology-based approach.

11 The other approach would be to go into
12 partnership with Kidd Creek, for example, or any other
13 large industry, and see what their requirements are,
14 for energy services, and then go to research and or to
15 product development or to ESCOs or something like that,
16 and see what we can do for them to service their needs,
17 rather than come knock on their door ten different
18 times and say, "Today we have light bulbs and tomorrow
19 we have power factor corrections, and the day after we
20 have timers," and so on.

21 Q. So you're talking about --

22 A. This is exaggerating here, but just
23 to make the point.

24 Q. Yes.

25 A. It's not -- neither of those happens

1 exactly that way.

2 Q. You're saying you want to move
3 towards a comprehensive treatment of given customer or
4 customer group?

5 A. That is correct.

6 Q. Glad to hear it. Can we turn to
7 hydraulic briefly?

8 Mr. Chairman, I should preface, I have
9 just a few questions in this area, because I understand
10 that Ms. Marlatt, at least, will be going on at some
11 greater detail.

12 Now, first of all, Mr. Snelson, I assume
13 these questions are for you. Do I take it, from the
14 materials you have provided us, that you do not, in
15 fact, foresee needing site-specific approvals within
16 five years for all of the hydraulic in the range for
17 which you seek approval?

18 MR. B. CAMPBELL: Before Mr. Snelson
19 answers, we have had several different -- we have had
20 some discussion before on this matter as to the
21 definition of need. I'm going to assume, once again,
22 for the purpose of this question, Mr. Poch, we're
23 talking about narrow definition capacity megawatts.

24 MR. D. POCH: Let's start with that.

25 MR. SNELSON: I want to make a further

1 clarification as to the meaning of five years. If we
2 are talking about the Five Year Action Plan that
3 Ontario Hydro has used, then the definition of that is
4 that it's the projects for which environmental
5 assessments must be submitted, within five years at the
6 end of this process is the most --

7 MR. D. POCH: Q. Fine.

8 MR. SNELSON: A. -- clearest statement
9 of that.

10 Q. All right. And I take it, first of
11 all, looking at the narrow definition of "need" for a
12 system, "system need" I think you have called it as one
13 euphemism, a "capacity need," do I take it that some or
14 all of you are currently seeking in the terms of - in
15 the range of hydraulic that you are asking approval
16 for - would not be, you would not need to submit EAs to
17 attain it in a timely fashion, that is, to submit it
18 within five years?

19 A. Strictly on median load growth, that
20 may be the case, but we also have to consider
21 flexibility to cover higher than median load growth.

22 Q. Yes, but we are in a -- you have not
23 abandoned planning to the median which --

24 A. I'm sorry?

25 Q. You have not abandoned, abandoned

1 planning to the median, which you told us about at the
2 time of the last update?

3 A. We have never planning to the median.
4 We are planning around the median.

5 Q. Around the median.

6 And, in fact, Mr. Snelson, while this is
7 detail which is beyond strictly speaking the scope of
8 the hearing, you have been kind enough to provide us
9 with information of what you would actually do,
10 currently foresee doing, within that range in terms of
11 actual projects. I take it that active proposals
12 within Hydro right now are principally Niagara,
13 Mattagami, Little Jackfish and farther out we get into
14 Patten Post, and so on. Have I got them?

15 A. Well, certainly, the ones that you
16 mentioned are active.

17 Q. All right.

18 A. Little Jackfish, Mattagami and
19 Niagara.

20 Q. All right.

21 A. And as I think everybody is aware,
22 environmental assessments of those are under way.

23 Q. Yes. And your current assumption is
24 that you would not, in fact, quite apart from this
25 narrow question of need, for all the reasons that come

1 into your decision-making on a site-specific basis,
2 when it comes to Little Jackfish, at least, you
3 wouldn't be planning to proceed on it currently on a
4 schedule that would require you to submit EA within
5 five years?

6 A. At a median load growth, that is
7 correct--

8 Q. All right.

9 A. --but it does provide flexibility.

10 Q. All right. And at page 3015, you
11 were asked to tell us what criteria were used by Hydro
12 in the most recent, in 796, in the most recent plan, to
13 make decisions concerning deferral of certain resources
14 or non-deferral of others; and your reply was that the
15 specific matters addressed in discussions with the
16 Hydro Board are included in Attachments A and B to
17 Exhibit 796, the two, the September, October Board
18 memos.

19 And it would be of assistance to me if
20 you could turn to those documents and point me to the
21 particular items, in each of them, that you believe
22 refer to the decisions to proceed with Mattagami and
23 Niagara ahead of system need for capacity purposes.

24 It may simply be that these are the items
25 in Attachment A to the October Board memo, but I want

1 to be very clear about this.

2 A. I think it might be quite
3 time-consuming to capture all of the references in
4 those documents, but the summary of those matters is in
5 Attachment A.

6 Q. All right.

7 A. And I'm look being at the Executive
8 Summary which is on pages Roman numeral - small Roman
9 numeral -i and ii, and there is an item 4-D, dealing
10 with Niagara Development and an item 4-E, dealing with
11 Mattagami development.

12 Q. All right. That's fine.

13 Now, also related to hydraulic,
14 yesterday - I'm sorry, Tuesday - at page 30978 of the
15 transcript, Mr. Greenspoon was asking you about a
16 scenario where Mattagami doesn't proceed, and asked you
17 about the implications for transmission, and you said
18 there could be an impact on transmission south to
19 Sudbury, and that this amongst other impacts would be,
20 I take it - I took it from context - that this amongst
21 other impacts would be their subject of study in the
22 ongoing - in the forthcoming - look at transmission.
23 Is that fair?

24 Or would you not be looking at that
25 because it's premised on the hypothetical that

1 Mattagami doesn't proceed?

2 A. I think my answer there was a little
3 confused, but I did get it right in the end. The
4 transmission plans review that is under way at the
5 moment is with respect to the effects of the change in
6 the load forecast and the change, in particular, of
7 terminating the Manitoba purchase.

8 Q. All right. So this study wouldn't --
9 your understanding is this study wouldn't carve out the
10 question of looking at the impacts if Mattagami was
11 cancelled?

12 A. I don't believe the study is
13 specifically addressing that.

14 Q. All right. You said there is
15 obviously some, I think the words you say - your phrase
16 was - there could be some impact on the need for that
17 transmission, and I think Mr. Greenspoon asked you
18 about south from Sudbury, too.

19 Is it fair to say that if there were no,
20 there is no Manitoba and if there were no decision to
21 proceed, was the decision not to proceed with Mattagami
22 or Little Jackfish that there could be an impact -
23 again, there could be an impact - on the need for the
24 transmission south from Sudbury?

25 A. Sorry. If there is no...?

1 Q. In that there is now no Manitoba
2 purchase foreseen, if we were to presume no Mattagami
3 and no Little Jackfish, and the reduced assumptions
4 about non-utility generation in the northwest, is it
5 fair to say then, there may be - again, there may be,
6 and you have not studied it but there may be - some
7 impact on the need for further transmission south from
8 Sudbury?

9 A. All the changes in load and capacity
10 that affect the balance between different parts of the
11 system affect inter-regional transmission flows.

12 Q. All right.

13 A. So changes in generation plans do
14 that, changes in load does that. You also have to
15 recognize the fluctuating nature of the transfers that
16 occur between regions as the system is operated
17 economically, and all those matters, I believe, were
18 dealt with by Dr. Macedo on Panel 7.

19 Q. All right. As you've pointed out--

20 A. So --

21 Q. --circumstances have now changed?

22 A. Yes. There are many factors that
23 affect the balance of the transmission system between
24 regions.

25 Q. All right. Load forecast has

1 changed, so now if we were to posit that these projects
2 I've listed don't go ahead, that could have an impact
3 on the need for this transmission. And you are not in
4 a position today to tell us the answer to that, what
5 that inquiry might bring us. Is that fair?

6 A. We are not in a position to give --
7 it is not complete. We are not in a position to give
8 the results of that study until it is done.

9 Q. All right. Now, with respect to
10 Mattagami, in particular, you were not quite certain of
11 the number that is in the Indemnity Agreement. We have
12 been using 250 million as an approximation. Why don't
13 we stay with that. I'm sure you will inform us if we
14 are wildly out.

15 Have you discussed, or are you at liberty
16 to say whether you have discussed with the government,
17 the possibility that you could postpone a decision,
18 postpone pursuing environmental assessment approval for
19 either the rationale or the site-specific approval
20 required to proceed with Mattagami, and that during
21 that hiatus, you would agree with the government, you
22 would not pursue the reimbursement of the purchase
23 price of the dam, that 250 million, and that you would
24 not -- you would treat those rights you have under the
25 contract as being determined when and if you pursue EA,

1 and either get approval or not?

2 Has that been discussed?

3 MR. B. CAMPBELL: Mr. Chairman, if there
4 is going to be any change to that, that is a matter
5 that we will advise the Board of at the appropriate
6 time. I don't think it is appropriate for my friend to
7 inquire into what, if any, discussions are taking place
8 between Ontario Hydro and the government, on this or
9 any other matter.

10 MR. D. POCH: Well, Mr. Snelson --

11 MR. B. CAMPBELL: There is an agreement
12 on this matter. That agreement remains in force.

13 MR. D. POCH: All right.

14 Mr. Chairman, I asked this question
15 because the materials that have been provided refer to
16 this Indemnity Agreement and this apparent deadline
17 sometime in 1994 as being a consideration that Hydro's
18 Board had when it made its - constructed its current
19 plan, and I'm simply seeing if that is a hard deadline,
20 or if there is a possibility that deadline can move.
21 If Mr. Campbell feels it is inappropriate to comment, I
22 am content to leave it at that.

23 [10:18 a.m.]

24 MR. D. POCH: Q. Mr. Snelson, you
25 discussed MUGs, M-U-Gs, municipal utility generators,

1 briefly - I think it was with Mr. Shepherd - and you
2 mentioned -- and I think it was the Chairman who
3 offered some examples we have all been reading about in
4 the press.

5 Could I ask you to provide us with a list
6 of all the proposals that have come to your attention
7 formally or informally from municipalities and include
8 the location and the megawatts, assuming there is no
9 confidentiality problem? And let's leave this to a
10 list in the last several months so we are talking about
11 a current list.

12 MR. B. CAMPBELL: Well, perhaps, Mr.
13 Chairman, the simplest...

14 Perhaps the simplest thing might be
15 for -- at least, I think my recollection would be there
16 have been various reports in the press. I am not sure
17 how many of them Mr. Snelson is familiar with, but if
18 he does have any particular knowledge if he could give
19 a list and if there are any additions or corrections we
20 will correct the answer.

21 MR. D. POCH: Whatever is easiest, Mr.
22 Chairman.

23 MR. SNELSON: I think at this time in
24 my -- what I have in front of me in my briefing
25 materials I don't have a specific list. And while I

1 know, that there are proposals formally or informally
2 in places such as Kingston and Windsor and Toronto. I
3 couldn't be more specific than that at this time.

4 MR. D. POCH: All right.

5 Q. I take it someone at Hydro is
6 watching this with some interest?

7 MR. SNELSON: A. I'm sure people, some
8 people are watching this with considerable interest.

9 Q. I am content to take an undertaking
10 that if you could inquire and someone from Hydro could
11 provide us with a list of proposals that have come up,
12 say -- either come up or were still on the table within
13 the last six months with location and megawatts, either
14 municipal proponents or -- I gather some of these are a
15 cooperative reference between municipalities and
16 private proponents which were being brought in to work
17 with the municipality.

18 I think we would like to capture both
19 categories since I assume they are all considered
20 municipal from Hydro's perspective in that they involve
21 municipal utilities.

22 THE CHAIRMAN: But it is the ones
23 involving municipal utilities that you are concerned
24 with?

25 MR. D. POCH: Yes.

1 THE CHAIRMAN: Either directly or
2 indirectly?

3 MR. D. POCH: Yes, because I think we
4 have heard, Mr. Chairman, that there is no inclusion at
5 all of that in the current planning assumptions, and
6 obviously, it is an uncertainty we would like to have
7 some sense of the scale and location.

8 MR. SNELSON: As I have said, this is a
9 matter being discussed by a task group, including MEA,
10 Ontario Hydro, and Ministry of Energy representatives.
11 I will give the undertaking that we will provide what
12 can be provided, subject to whatever confidentiality
13 considerations might apply.

14 MR. D. POCH: Yes.

15 MR. SNELSON: And taking into account
16 that your request is both for items that are formally
17 and informally known to us, then I will caution you
18 that anything we give you about something that is
19 informally known to us will be correspondingly informal
20 in our --

21 MR. D. POCH: I certainly understand
22 that, Mr. Snelson.

23 MR. B. CAMPBELL: Mr. Chairman, I am not
24 prepared to provide a list that is based on rumours and
25 whispers.

1 If we have some hard information in
2 connection with this, then I'm quite happy subject to
3 confidentiality to take the undertaking. But I think
4 'informally known', with all due respect to Mr. Snelson
5 I am not prepared to operate quite on that basis.

6 If we have got some real information that
7 there is a serious proposal, then that's fine.

8 MR. D. POCH: As long as you believe it
9 is a serious proposal, that is a sufficient criterion.

10 Mr. Chairman, I would just ask if there
11 are any confidential -- if we could simply have the
12 megawatts involved with the confidential ones we won't
13 ask for the location for those, and perhaps they could
14 even be lumped together if that is necessary to protect
15 confidentiality.

16 MR. B. CAMPBELL: Mr. Poch is aware of
17 the kind of steps in providing some of this kind of
18 information that we take to respect confidentiality,
19 and so those are the kinds of steps we would normally
20 take and will in this case.

21 THE CHAIRMAN: Could we have a number for
22 this undertaking?

23 THE REGISTRAR: 940.18.

1 ---UNDERTAKING NO. 940.18: Ontario Hydro undertakes to
2 provide a list of all proposals
3 coming to Hydro's attention, formally
4 or informally, from municipalities,
 including location and megawatts
 where not prohibited by
 confidentiality considerations.

5 MR. D. POCH: Q. Mr. Snelson, we are
6 talking certainly hundreds, possibly thousands of
7 megawatts that are being tossed about?

8 THE CHAIRMAN: Well, I think he said he
9 didn't know other than the three in Kingston, Windsor
10 and Toronto.

11 MR. D. POCH: Q. Kingston, Windsor and
12 Toronto, they add up to how much roughly?

13 MR. SNELSON: A. It is at least in the
14 order of several hundred megawatts - 'several', I
15 didn't say 'seven'; 'several hundred' megawatts.

16 Q. Seven may be not incorrect, I take
17 it?

18 A. That is encompassed within the more
19 general statement, yes.

20 Q. We will wait for the list.

21 Now, I want to just understand what has
22 been done and not done in considering the current plan,
23 and I will be very brief.

24 I think you have agreed already - and let
25 me just nail this down - you have not provided anywhere

1 the total cost of the plan in nominal or present value
2 or any alternatives to or alternative methods?

3 MR. B. CAMPBELL: Well, just a minute.
4 You are talking about in addition to all of the other
5 information that we have provided to this hearing are
6 there any new, additional...?

7 MR. D. POCH: For the current plan is
8 what I am asking.

9 MR. B. CAMPBELL: No, no.

10 MR. D. POCH: It is a very simple
11 question. If it is in the previous evidence I am
12 content to be pointed to it. I am asking, have you
13 provided anywhere for the current plan what the total
14 costs are?

15 THE CHAIRMAN: I think we might get into
16 a bit of a discussion about this. So perhaps we should
17 take the projected morning break.

18 It will be at least until eleven o'clock
19 before we reconvene. I hope it will be around eleven
20 o'clock, but it will be at least until then.

21 MR. D. POCH: We will go for a double
22 cappuccino.

23 THE REGISTRAR: Please come to order.
24 This hearing will break until approximately eleven
25 o'clock.

1 ---Recess at 10:25 a.m.

2 ---On resuming at 11:08 a.m.

3 THE REGISTRAR: Please come to order.

4 This hearing is again in session. Please be seated.

5 MR. B. CAMPBELL: Now all we need is the
6 witnesses, Mr. Chairman.

7 MR. D. POCH: Q. When we left off we
8 were about to have a discussion about whether or not
9 you have provided anywhere the total costs in nominal
10 or net present value terms of the current...I will call
11 it 'preferred plan'.

12 THE CHAIRMAN: Well, isn't it the only
13 plan?

14 MR. SNELSON: It is the only illustration
15 of how our plans would work out over the 25 years, yes.

16 MR. D. POCH: Q. And with respect to
17 that, Mr. Snelson?

18 MR. SNELSON: A. We have not shown a
19 present value cost of that plan.

20 Q. Or a nominal dollar cost?

21 A. Or a nominal dollar cost.

22 Q. I think you have already agreed that
23 you haven't done a comparison of the overall
24 environmental impact of this plan versus potential
25 alternative plans.

1 A. We have done a lot of comparison of
2 environmental effects of options and the plans. We
3 have dealt with what we consider to be the most
4 significant environmental effects that are changed by
5 the change of this plan.

6 Q. You don't anywhere compare this plan
7 to other plans that might be variants that would be
8 possible in the current situation?

9 A. We have compared to variants, and we
10 discussed matters in terms of earlier Panels.

11 Q. Those variants were with different
12 assumptions about load and population and what have
13 you? They were for a different context.

14 A. There has been some shift in those
15 components that you discuss, yes.

16 Q. You have only got one plan that is
17 responding to the current situation you see out there
18 in the economy?

19 A. We have shown one illustration of how
20 the decisions that we have made could play out over 25
21 years.

22 Q. And you have not provided us anywhere
23 with comprehensive environmental comparison of that
24 illustration of how you are now planning to respond
25 versus other ways that you might respond to the current

1 situation?

2 A. I have agreed with Mr. Castrilli that
3 we have not repeated the comprehensive environmental
4 analysis that we did in Exhibit 4 and we did prior to
5 Exhibit 10.

6 Q. All right.

7 A. We have dealt with the matters that
8 we believe that are most significant that have changed
9 since that time.

10 Q. All right. Have you done a
11 sensitivity analysis of what would be optimal if you
12 changed the assumption for nuclear performance in the
13 current situation?

14 A. No.

15 Q. Have you done it for a significantly
16 changed assumption for the cost of gas?

17 A. Not other than the general analysis
18 as to how gas costs and nuclear performance affects
19 plans in general.

20 You have to remember that all of this
21 information that we are presenting now adds to the
22 information we have given you of a more general nature
23 on all the other panels and in other exhibits.

24 Q. I understand. And have you done a
25 sensitivity analysis of this shape of this plan for a

1 different assumption about the cost of capital?

2 A. My answer remains the same.

3 Q. And the answer is "no"?

4 A. Not specifically.

5 Q. All right.

6 A. It builds on the general analysis
7 that has been done and reported in other Panels.

8 Q. And I take it you have agreed you
9 haven't done one with a changed scenario where Bruce
10 "A" is retired in whole or part or mothballed in whole
11 or part?

12 A. That is under investigation as a part
13 of the Bruce "A" rehabilitation study where that is the
14 specific matter to be addressed.

15 Q. And you haven't done one if one
16 assumes municipal utility generation projects proceed
17 or not in large part or not?

18 A. There have been some scenario
19 analysis with respect to surplus that was reported, and
20 additional non-utility generation in terms of its
21 effect on surplus was reported in one of the board
22 memos.

23 Q. All right. Could you just point me
24 to that?

25 A. I am in attachment B to Exhibit 796,

1 and I have a page that has "Figure 3" at the top. It
2 doesn't have a page number. It is in appendix A to
3 that attachment, and the figures follow page 22.

4 Q. I'm sorry, the figure number was...?

5 A. Figure 3.

6 THE CHAIRMAN: Is that the one that says
7 "Scenario Capacity Balance, 2002"?

8 MR. SNELSON: That's correct.

9 MR. D. POCH: Q. I'm sorry, so all you
10 have shown is the impact on capacity balance if you had
11 5,000 megawatts of what is labeled "unneeded NUG"; is
12 that what you are referring to?

13 MR. SNELSON: A. It shows the effect of
14 having more non-utility generation than we need.

15 The figures on the lefthand axis, the
16 vertical axis, are figures of surplus. So it shows the
17 difference between the -- it shows that if we get more
18 unneeded non-utility generation then the surplus could
19 be as high as almost 6,000 megawatts as compared to a
20 base case of a little over 4,000.

21 Q. But you haven't anywhere provided us
22 with a sensitivity analysis if you assume more NUG and
23 balance in some other ways. You haven't given us
24 alternatives where you manage in a different way. You
25 are giving us one illustrative management which you

1 think is the most likely at this time.

2 A. There is one case that is worked
3 through in terms of the load and capacity and energy
4 production and through to emissions.

5 Q. And you haven't done any sensitivity
6 analysis depending upon different outcomes for your
7 thinking on your review of fossil life extension?

8 A. I believe our position on fossil life
9 extension remains the same as it was on Panel 8.

10 Q. Now, I won't repeat conversations you
11 have had with Mr. Watson and Mr. Shepherd and others
12 about the analytical steps which you have not yet done
13 or will not be doing, but I do recall that you said --
14 and indeed, the footnote on little page (i) of
15 attachment A, this document points out that for Little
16 Jackfish and Patten Post and Gibson only a 10-year
17 deferral was analysed, and that, I take it, was only on
18 the old SICs, and that no attempt has been made to
19 identify the optimal deferral period.

20 Now, I believe you have agreed with Mr.
21 Castrilli that you had not attempted to find the
22 optimal deferral period for Mattagami either; is that
23 correct?

24 A. Yes, the change in the service date
25 of Mattagami is an adjustment to reflect the way in

1 which the project is actually developing and the likely
2 schedule. It is not an optimization of when is the
3 most economic time --

4 Q. And is the same true for Niagara?

5 A. Yes.

6 Q. All right. Now, can I ask you, it
7 seems apparent that you have changed from only
8 including in your plan those projects or hydraulic
9 range representing those projects for which you would
10 be submitting environmental assessment within five
11 years. When did that change occur?

12 A. I'm sorry, I --

13 Q. You have agreed that you are now
14 asking for approvals, at least in the hydraulic range,
15 representative of projects for which you would not
16 need - indeed, you may not even -- you would not need
17 on a capacity basis, indeed you may not need for other
18 reasons either in the case of Little Jackfish or Patten
19 Post - to submit site-specific EAs within five years.
20 When did you change that?

21 MR. B. CAMPBELL: Just a minute. Just a
22 minute.

23 Mr. Chairman, on that matter it is our
24 view of the matter that that flows from the Board's
25 ruling that it would not consider site-related matters,

1 and the evidence that was given on Panel 6 is quite
2 consistent with that, and the position that we took
3 with respect to, as we understood, the way the Board
4 characterized the nature of the approvals it was
5 prepared to consider.

6 It was all dealt with at that time. It
7 arises directly from that discussion.

8 MR. D. POCH: Well, Mr. Chairman, it is
9 obviously a matter for argument that I won't pursue at
10 length with the witnesses.

11 [11:20 a.m.]

12 Q. Given that, Mr. Snelson, do I take it
13 that your hydraulic range now represents a range which
14 could be called the range which may possibly be needed
15 within, what, 25 years? Is that where you've drawn the
16 line now?

17 MR. SNELSON: A. Well, I think that the
18 situation with respect to hydraulic capacity is exactly
19 the same now as it was on Panel 10.

20 Q. Mr. Snelson, unfortunately we have
21 obviously had a different understanding at the time of
22 Panel 10 about what we thought was in and out and how
23 you were deciding that; and given the clarification of
24 what Hydro's interpretation is that Mr. Campbell just
25 made, I'm asking you, if you would be so kind, what is

1 it that determines the size of the hydraulic range now?

2 Is it --

3 MR. B. CAMPBELL: I'm sorry, Mr.
4 Chairman. We have said there was no change. That
5 matter was clearly explained in Panel 6. They went
6 through the whole evidence as to the remaining
7 hydraulic potential in the province, how the range was
8 developed; no change to that. It has all been covered.

9 MR. D. POCH: Q. I'm not asking to
10 revisit Panel 6 and and how the potential range was
11 reduced to the lesser numbers, I'm just asking Mr.
12 Snelson the narrow question: Does the range you are
13 now asking for approval for represent the hydraulic for
14 which you seek -- you believe you may need to seek
15 site-specific approval within, what, is it 25 years?

16 That is all I'm asking.

17 THE CHAIRMAN: I think he can answer that
18 question, Mr. Campbell. It may be repetitious, but I
19 think it would be helpless proceeding along if he did
20 that.

21 MR. SNELSON: We've given evidence as to
22 the reasonable range of hydraulic to be installed, we
23 have shown evidence -- shown it being installed over a
24 period of up to 25 years, we have also indicated in our
25 evidence that the value of having some elements of

1 approvals that would permit installation ahead of the
2 need under median load growth to permit flexibility.

3 So it is quite possible that we would
4 need to submit environmental assessments for projects
5 of that full range within the 25 year -- within the
6 five-year period.

7 MR. D. POCH: Q. I understand, and it is
8 quite possible you wouldn't, and I am just
9 understanding where you have -- trying to understand
10 what the limit is.

11 How is that range currently limited? Is
12 it those projects, the range representing projects for
13 which you may need to submit within 25? You have
14 indicated you may want to submit sooner, but have I got
15 that right?

16 MR. SNELSON: A. The range is derived
17 from the potential of the province in the way that was
18 described by Panel 6.

19 Q. So it is not limited to within 25
20 years, it is sort of: that is it forever, and you may
21 need some of it sooner or you may need some of it
22 later?

23 A. I don't believe that was the evidence
24 of Panel 6.

25 THE CHAIRMAN: I think you would have to

1 go back to Panel 6. I think that is quite an
2 oversimplification of my recollection of Panel 6.

3 MR. D. POCH: Fair enough.

4 Q. And I take it that is an
5 interpretation that is only -- Mr. Campbell, maybe you
6 can help us, you are only applying that to the
7 hydraulic component. Of course that's all there is at
8 this point.

9 MR. B. CAMPBELL: These are large
10 investments potentially in these projects, and those
11 are the approvals we are asking for.

12 MR. D. POCH: Q. Mr. Snelson, my
13 recollection at the time of the last update was that to
14 obtain upward flexibility you were banking on the
15 availability of non-utility generation and CTU's, both
16 of which have a relatively short lead time.

17 Wasn't that your principal insurance
18 policy, if you will, against higher load growth?

19 MR. SNELSON: Well, I suggest that you go
20 back to Exhibit 452 and you will find that that is a
21 part of the response to upper load growth, but
22 installing hydraulic facilities on an earlier schedule
23 is also a part of that.

24 Q. Do I take it now that you are ranking
25 installing hydraulic as a more likely item to turn to

1 in that scenario than NUGs?

2 A. No, I don't believe there has been
3 any change in that regard.

4 Q. Mr. Snelson, you have already
5 indicated to others that you are going -- you are doing
6 this transmission study, can I take it from that you
7 haven't done an integrated generation and transmission
8 planning exercise?

9 You are doing generation first, and then
10 transmission later.

11 A. The decision with which I think you
12 are referring to, and I am treating your question here
13 as referring specifically to the Manitoba purchase
14 decision, and it was clear at the time that that
15 decision was made that one of the reasons for making
16 the decision was to be able to reduce the investment in
17 transmission in the 1990s.

18 So it was a decision that was taken with
19 transmission implications in mind.

20 Q. Well, Mr. Snelson, just before the
21 break we discussed the fact taht you had not now gone
22 back with the new load forecast, with the abandonment
23 of Manitoba, with the lower NUG projection, and so on;
24 you have not gone back now to look at the transmission
25 implications of proceeding or not proceeding with the

1 other northern projects?

2 You agreed to that, you said there may be
3 some impact, you are going to study it.

4 A. Yes.

5 Q. So I'm correct then that you are
6 making -- you are pursuing generation here, and yet you
7 still have to look at the transmission impacts afresh,
8 given the new context?

9 A. And my answer remains the same, that
10 when making the decision with respect to the Manitoba
11 purchase, people were aware that there would be a large
12 saving in transmission and that was a significant
13 contributor to the decision.

14 Q. But you have now not gone back and
15 looked at what the impact on transmission is if we were
16 to look at cancelling other northern projects.

17 That you have already agreed to?

18 A. Yes.

19 Q. All right. Well, maybe we will just
20 leave it at that, I think. The rest is really fairly
21 obvious.

22 Now, again, there has been a list of
23 other studies, I won't repeat what studies are in
24 progress.

25 Now, with respect to Bruce "A" in

1 particular, you are talking about a fairly major study
2 here.

3 A. Are we talking about the Bruce review
4 study that we have just talked about?

5 Q. Yes.

6 A. Yes.

7 Q. And I take it that there is some
8 pressure from the federal regulator to resolve this
9 matter one way or the other?

10 A. I'm not in the situation of being
11 aware of the discussion between the AECB and Ontario
12 Hydro in that regard.

13 MR. D. POCH: Well, Mr. Chairman, I have
14 information which has no evidentiary value at all that
15 things are changing here on this topic, and I know the
16 witnesses will be at a disadvantage because there have
17 been discussions as recently as yesterday.

18 So perhaps I will just invite my friend
19 Mr. Campbell, when he gets briefed on the current
20 situation with respect to Bruce "A" and the process
21 that is going to be used there and whatever the
22 deadlines they are working to from the federal
23 regulator, if he could just advise us all, that would
24 be satisfactory to me.

25 Mr. Campbell, can we take that as given?

1 MR. B. CAMPBELL: I am taking this as an
2 invitation from Mr. Poch to advise the Board when
3 Ontario Hydro has been advised of whatever it is he is
4 talking about, and --

5 MR. D. POCH: No, I'm sorry, I didn't
6 mean just with respect to the discussions between the
7 federal regulator and Hydro, but also whatever decision
8 Hydro is making on the time line of that study, and
9 what review there will be.

10 I understand there are some decisions
11 being taken there, and I just wanted to be assured that
12 we would learn of them at the earliest moment.

13 MR. B. CAMPBELL: I will undertake to
14 advise the Board once a conclusion has been reached
15 with respect to the scope and -- or not the scope, with
16 the timing of the Bruce "A" review. Yes, I will
17 undertake to advise the Board at an appropriate time.

18 THE CHAIRMAN: Do you want a number for
19 that?

20 THE REGISTRAR: Nine-forty point --

21 THE CHAIRMAN: Just a minute. Do you
22 want a number for that?

23 MR. POCH: Yes. That would be helpful,
24 Mr. Chairman, just to keep track of it.

25 THE CHAIRMAN: Yes. May we have the

1 number. Mr. Lucas?

2 THE REGISTRAR: 940.19.

3 ---UNDERTAKING NO. 940.19: Ontario Hydro undertakes to
4 advise the Board once a conclusion has
5 been reached with respect to the timing
6 of the Bruce "A" review.

6 MR. D. POCH: Thank you.

7 Q. Now, there was mention of a special
8 60-day task force, I think it was referred to as a
9 60-day task force --

10 THE CHAIRMAN: Well, as I understand it,
11 just to shorten this a bit, there was a request by the
12 board of directors of the proponent to review what is
13 going to happen at Bruce "A", that that review process
14 is under consideration as to the form and time it is
15 going to take, and that that has not yet been
16 determined.

17 That was, as I recall, what... Is that
18 right, Mr. Snelson?

19 MR. D. POCH: I'm sorry, Mr. Chairman. I
20 wasn't clear. I was actually comfortable with the
21 transcript undertaking; I was turning to a whole
22 separate task force, but, yes, go.

23 THE CHAIRMAN: You are talking about
24 Bruce "A"? Are you not talking --

25 MR. D. POCH: I am turning to another

1 topic, but I am happy to have your clarification
2 with --

3 MR. B. CAMPBELL: That question wasn't a
4 Bruce "A" question, as I understand it.

5 THE CHAIRMAN: I'm sorry.

6 MR. D. POCH: I am content to leave Bruce
7 "A" for the moment now that we have that undertaking.

8 I understood there was another special
9 60-day task force of a different topic reacting to the
10 rate pressure, I think is the title.

11 Q. Is there a title for that task force?

12 MR. SNELSON: A. I believe the task
13 force you are referring to, which was set up about a
14 week ago, is the corporate task force on change.

15 Q. Corporate task force on change.

16 That is a very broad mandate. Do you
17 have any further information on what is involved in
18 that and who is invited to be a participant in that?
19 Is that an internal task force or is that an external
20 consultation exercise?

21 MR. B. CAMPBELL: Mr. Chairman, I think
22 my friend is walking right into management, the
23 management actions that are being taken at Ontario
24 Hydro.

25 I can advise the Board that Mr. Strong

1 has established this for the purpose of reviewing the
2 nature of the management of Ontario Hydro, but it is
3 not -- and Mr. Snelson, I think, made brief reference
4 to this somewhat earlier, but I do not believe that
5 it -- I don't think that it is particularly relevant to
6 this matter or that any time should be spent on it.

7 It is entirely aimed at the nature of
8 management within Ontario Hydro.

9 MR. D. POCH: That is really all the
10 clarification I wanted, Mr. Chairman. I just wanted to
11 understand if this is some consultation with external
12 groups about how they are reacting to rate pressures,
13 or if this is just a look at reshuffling management in
14 Hydro, then we don't need to know any more.

15 MR. B. CAMPBELL: I don't think I would
16 characterize it as a look at reshuffling Ontario --
17 there are some objectives for that, it is responding to
18 the rate pressures, all of the things that we have been
19 talking about, but this is intended to deal with how
20 management can best respond to the kinds of -- or
21 changes in the nature of management can best be made to
22 respond to the very kinds of pressures that have been
23 talked about.

24 But this is not a general inquiry into
25 Ontario Hydro matters of all type and description, and

1 in my submission this kind of internal process is a
2 management process that is beyond the privy of this
3 hearing.

4 MR. D. POCH: Well, I guess I was just
5 asking: Is this an internal process? Is this another
6 version of the corporate improvement initiatives now at
7 Mr. Strong's behest or is this -- are you inviting in
8 our friends from MEA and AMPCO to consult about it?

9 That is really what I am after here.

10 MR. B. CAMPBELL: I can advise that this
11 is an internal-led effort.

12 I am not saying there isn't consulting
13 help to do the work, but it is an internal task force.

14 MR. D. POCH: Thank you.

15 Q. Mr. Snelson, you mentioned Darlington
16 is expected to be on-line fully by late '93 or early
17 '94. I understand that there were problems at
18 Darlington, we had some discussion about them at the
19 time of Panel 9. There was this "shake" problem and
20 there was the fuel bearing -- fuel bundle bearing wear
21 problem.

22 Have all those problems been completely
23 solved?

24 MR. DALZIEL: A. I don't know if all of
25 those problems have been resolved. We know that two of

1 the units are in service and operating, a third one is
2 under commissioning, and a fourth one is nearing
3 completion of its construction.

4 Q. Well, you don't know if the problems
5 have been solved or not? Can we find out if the
6 problems have been completely eradicated or if they are
7 still--

8 A. Which problems?

9 Q. --some problems?

10 The several problems that were spoken of.
11 I understood there was wear of the bearing, the fuel
12 bundle bearings, there was end plate problems, there
13 was a general shake, shudder and roll, I think that
14 was -- had to do with the, possibly with the impellers.

15 Have all these problems gone away or do
16 some of them remain? Can we find that out?

17 A. There seems to be an improvement with
18 the impellers. The vibrations that were caused by the
19 number of veins on the impellers --

20 Q. There has been an improvement, but
21 has the problem been completely solved? That's what I
22 am really asking. Is there still a residual problem to
23 be solved?

24 THE CHAIRMAN: Well, "completely solved"
25 involves some kind of opinion. There would be

1 different views, I am sure, as to various parties as to
2 what "completely solved" means.

3 MR. D. POCH: Well, I'm content with just
4 learning what Hydro's view is, Mr. Chairman --

5 THE CHAIRMAN: -- has it been in such a
6 state that they feel satisfied that they can run the
7 generators? I would think that might be a question
8 you --

9 MR. D. POCH: Q. Well, I guess the
10 question is: Can they run the generators for the rest
11 of their life without further work on those problems?

12 I am wondering if we are --

13 THE CHAIRMAN: I don't think anyone can
14 answer those kind of questions, Mr. Poch.

15 MR. D. POCH: Well, Mr. Chairman, if they
16 have reduced the vibration 95 per cent and they figure
17 there is -- they are going to sooner or later have to
18 deal with the 5 per cent, that obviously has an
19 implication for the availability of these units, for
20 the capital modification budget assumptions, and so on;
21 and that is really what I am after.

22 THE CHAIRMAN: How has this got anything
23 to do with what we have got here before us, which is
24 Exhibit 796?

25 The evidence about this is in Panel 9,

1 and if there is anything new and different, I am sure
2 they will tell us.

3 MR. D. POCH: I thought they had, Mr.
4 Chairman. At the time of Panel 9 we had a problem that
5 was not solved, now they are telling us these reactors
6 are going on line; and I want to understand if the
7 problem is completed solved.

8 That is really what I am after.
9 Obviously this witness doesn't have the details.

10 MR. B. CAMPBELL: Mr. Chairman, I think
11 this witness has said that the units have been placed
12 in service and are operating. Unit 3 is about to be
13 placed in operation, and unit 4 is under
14 construction -- or the construction is nearing
15 completion.

16 I mean, they have been placed in service.
17 That was a question as to whether that would happen,
18 and when. It certainly was there in Panel 9 but the
19 modifications have been made and they have been placed
20 in service.

21 I think my friend has his answer.

22 MR. D. POCH: Well, Mr. Chairman, it
23 seems quite clear to me here from Mr. Campbell's
24 comments that there is obviously some information they
25 are not interested in giving us.

1 MR. B. CAMPBELL: No, no, no.

2 THE CHAIRMAN: That is not right, Mr.
3 Poch. That is not a fair comment.

4 In Panel 9 there was considerable
5 discussion about the problems at Darlington and what
6 was required in order to put them back into service,
7 and the expectations then as to when they might go back
8 into service. That was all part of Panel 9's evidence.
9 I don't think we need to go through all that again in
10 the context of discussing Exhibit 796.

11 MR. D. POCH: Q. Gentlemen, do you have
12 any information on the other reactors? Are there any
13 new problems with the other reactors? The boilers at
14 Bruce "B" or at Pickering, for example?

15 MR. DALZIEL: A. Beyond the problems
16 that have been discussed in Panel 9 and the materials
17 referred to in the September/October board memos,
18 there's nothing in addition to that that I am aware of.

19 Q. And, indeed, reference has already
20 been made to the September board memo, page 19 and 20,
21 where there is a discussion about nuclear performance;
22 and I won't repeat what is clear there, or has been
23 discussed by others, but...

24 THE CHAIRMAN: I'm sorry, what was that
25 reference, Mr. Poch?

1 MR. D. POCH: This is Attachment B, Mr.
2 Chairman, at pages 19 and 20 of the numbered pages
3 therein. The title is: Nuclear Performance.

4 THE CHAIRMAN: "D" as in dog?

5 MR. D. POCH: No, I'm sorry, "B" as in
6 Bob. This is the September board memo.

7 [11:40 a.m.]

8 MR. POCH: Q. From the introductory
9 paragraph there, do I -- can I take it that there has
10 been some escalation of regulatory -- of spending
11 induced by regulators' concerns, of late?

12 MR. SNELSON: A. Which introductory
13 paragraph?

14 Q. I'm sorry.

15 A. You referred to page 19 and 20.

16 Q. The top of 19.

17 A. I don't know that introductory
18 paragraph refers to anything in addition to what would
19 have been discussed on Panel 9.

20 Q. You are not in a position to tell me
21 if this paragraph refers to any recent increased
22 expression of concern? Is this -- I read it as that,
23 but it is dated September. I'm just wondering what
24 time frame we are looking, what this is referring to.

25 A. Well, I read the words, and it refers

1 to the nuclear program has been characterized in recent
2 years by, and then it has some discussion; so this
3 seems to me an introductory paragraph describing a
4 rather general situation over a number of years.

5 Q. Thank you then.

6 Now, there was some discussion about
7 this -- this -- if we turn to the very last page of
8 that attachment and elsewhere, and you were -- Mr.
9 Snelson, you were explaining that the trend in the --
10 in the cost figures for the Nuclear Operations Branch,
11 one had to be cognizant of the fact that Darlington was
12 coming into service. And, indeed, I think if we look
13 at the reference level sheet, which is the second table
14 in Appendix 2, that reference level sheet, the February
15 '92 OM&A Program Cost Reference Level, that would
16 capture --

17 THE CHAIRMAN: Now, let's hold it. I'm
18 not sure where we are.

19 MR. D. POCH: I'm sorry, Mr. Chairman.
20 This is still in Attachment B.

21 THE CHAIRMAN: Yes.

22 MR. D. POCH: And Appendix 2, the OM&A
23 Program Costs.

24 THE CHAIRMAN: Yes.

25 MR. D. POCH: And this is page -- it is

1 not numbered, I don't believe. It is page 2 of that.

2 THE CHAIRMAN: All right. I've got that
3 one.

4 MR. D. POCH: Q. Mr. Snelson, do you
5 have that, too?

6 THE CHAIRMAN: It's Reference Level
7 February '92?

8 MR. D. POCH: That's correct, Mr.
9 Chairman.

10 MR. SNELSON: A. If you just read the
11 identification off the bottom, I can be sure I have the
12 right one.

13 MR. D. POCH: Q. This is the -- this is
14 the CPD 9-11-92 11:26 a.m.

15 MR. SNELSON: A. I am vaguely familiar
16 with that reference; yes.

17 Q. All right. And the top line, Nuclear
18 Operations, this is the reference level projection,
19 that captures that coming into service at Darlington in
20 these numbers. Although there may be a shift between
21 some of those years as indicated by one of the
22 footnotes, the difference between '91 and '96 captures
23 whatever of Darlington is coming into service in that
24 period?

25 A. I believe it probably does.

1 Q. All right.

2 A. But this is, again, getting into the
3 budgeting area which is not the area that we are most
4 familiar with.

5 Q. Well, Mr. Snelson, this is what is
6 increasing rates, isn't it? We've already just agreed
7 to that?

8 A. You talked about the effect of
9 Darlington on increasing rates, yes. The operation and
10 maintenance cost is one of the cost components for
11 Darlington; interest and depreciation is another cost
12 component for Darlington, fuel.

13 Q. All right.

14 A. And there are also benefits in terms
15 of reduced coal consumption.

16 Q. That's fine, Mr. Snelson.

17 All I'm saying to you is the caveat you
18 offered which was one had to be cognizant of the fact
19 that Darlington was coming into service when looking at
20 these OM&A numbers, so, in effect, moneys that were
21 previously being capitalized are now coming down into
22 current budget and so show up on this sheet; that's
23 already captured in the reference level to whatever
24 extent that occurs?

25 A. Okay. And I have indicated I am not

1 fully familiar with this figures, but I believe it is
2 correct.

3 Q. Would you let us know if that
4 assumption is wrong?

5 A. Yes.

6 Q. You believe it is captured. Let us
7 know if we are wrong about this.

8 A. Yes.

9 Q. So then, Mr. Snelson, the hundred
10 million more, that is, when we turn to the last sheet
11 in this attachment, the hundred million more there
12 where the caveat --

13 THE CHAIRMAN: Now, what hundred million
14 more?

15 MR. D. POCH: Well, I may be
16 approximating, Mr. Chairman.

17 THE CHAIRMAN: I'm not quarreling with
18 you. I want to see what you're talking about.

19 MR. D. POCH: This is in nuclear -- the
20 top line again of the sheet that was produced at 6:05
21 p.m. that corrected for the errors, which is the OM&A
22 program costs coming out of this corporate review which
23 were in the top line of -- this is the top line, Mr.
24 Chairman, where it says "not resolved" because of the
25 discussion that we referred to a moment ago that

1 Nuclear Operations Branch's request for an additional
2 hundred million has not been necessarily approved.

3 Q. But that hundred million that is in
4 that discussion and that shows up here, that would be
5 in addition, Mr. Snelson, to whatever impact there is
6 because of Darlington coming on line.

7 MR. SNELSON: A. As I say --

8 Q. That's my question.

9 A. As I say, I am not fully familiar
10 with it, but the way that it appears to be, that is the
11 case.

12 Q. All right. And you will let us know
13 if that is wrong.

14 A. When I offered the discussion of
15 Darlington coming into service, it was as an
16 explanation of the fourth paragraph on page 19 of this
17 exhibit, and Darlington referenced that.

18 Q. All right. But --

19 A. And I believe - I have forgotten who
20 was cross-examining. We have had a number of people
21 now - I believe I did indicate that the last paragraph
22 which refers to an additional hundred million, that did
23 I indicate that I believed it was additional to the
24 requirements that were indicated in the previous
25 paragraph.

1 Q. Okay. Thank you. And the footnotes
2 to these tables indicate that the Bruce "A" spending is
3 also additional.

4 A. You would have to read the footnotes
5 on there carefully--

6 Q. All right. I think that's clear. We
7 don't need to.

8 A. --because there may be some parts but
9 not all -- not other parts.

10 Q. Now, just leaving nuclear for a
11 minute. Mr. Burke, if you recall, you had a discussion
12 with Mr. Castrilli about the 5 terawatthour upward
13 adjustment in your long-term load forecast at the
14 splice, 1997, when you adjust your long-term forecast
15 to pick up where the short-term forecast leaves off.
16 I've got that right?

17 MR. BURKE: A. We had a discussion.

18 Q. I have got the direction and the
19 amount roughly right?

20 A. Well, there's a 5 terawatthour
21 addition to the end use forecast to rate it in line
22 with the econometric model for that year.

23 Q. Okay. And it is the -- the
24 adjustment is to the long-term end use forecast moving
25 it up to the level of the short-term econometric

1 forecast?

2 A. Well, it was actually two, the 1997
3 level of the EEMO model --

4 Q. Was it not in 1997 because the EEMO
5 model is what is used for the short term?

6 A. That's right.

7 Q. All right. And just so I can get a
8 feel for this, 5 terawatthours for your system is
9 about -- my math tells me it is about 570 average
10 megawatts of capacity?

11 A. That's about right; yes.

12 Q. All right. So that would be in even
13 more colloquial terms about the capacity of, say,
14 Mattagami and Little Jackfish combined, Mr. Snelson?

15 MR. SNELSON: A. Of that order.

16 Q. All right. Mr. Burke, it seems then
17 that your reliance on the end use forecast for the long
18 term has been tempered somewhat by your short-term
19 econometric model to that extent, and I am wondering --

20 THE CHAIRMAN: Just one moment. This, I
21 think, was discussed in Panel 1, this technique--

22 MR. D. POCH: Yes.

23 THE CHAIRMAN: --of blending the short
24 term with the long term.

25 MR. D. POCH: I'm not going to pursue it

1 further, Mr. Chairman.

2 THE CHAIRMAN: Let me ask Mr. Burke. Has
3 anything changed in the way you do that?

4 MR. BURKE: The general approach is the
5 same as before.

6 THE CHAIRMAN: Has anything changed
7 quantitatively, that is, is it -- or can you remember
8 from the 1990 to the --

9 MR. BURKE: Quantitatively, yes.

10 In the 1990 load forecast, I believe
11 there was more of an adjustment required to meet the
12 short-term load forecast, and there was a further
13 adjustment beyond in combining the end use and
14 econometric forecast beyond the five-year period which
15 is I guess 1995 and beyond at that stage, there was a 5
16 terawatthour addition to the end-use model's commercial
17 sector forecast that was introduced at that time to
18 deal with the large differential between the commercial
19 forecasts for the two modelling systems.

20 There is still a large differential
21 between the two commercial forecasts, it's slightly
22 narrower before, but we have not made any upward
23 adjustment to the end use model beyond 1990 -- beyond
24 the five-year period for that difference in the
25 commercial sector.

1 MR. D. POCH: Mr. Chairman, just to help
2 my memory, I think it was 6 terawatthours roughly at
3 the splice, back then, and it's 5 terawatthours now.

4 Q. Does that ring a bell to you, Mr. --
5 nothing turns on it.

6 MR. BURKE: A. I actually thought it was
7 a little more than that.

8 Q. All right. Nevertheless, that was
9 all really just background to my question which is:
10 Since we see this adjustment still occurring to the
11 long-term forecast, to make it reconcile with the end
12 of your short-term econometric forecast, I am
13 interested in what the recent history has been. Now,
14 you can tell us, how well have you been doing on your
15 short-term forecast? Is there anywhere in your load
16 forecast -- maybe this is the simpler way of putting
17 the question. In the materials you provided us, have
18 you provided us with what you used to provide us, if my
19 memory serves, a chart showing forecast versus actual
20 for the last few forecasts?

21 A.. I don't recall that we regularly
22 provided a forecast versus actual for the few
23 forecasts, but effectively in the table -- in this
24 document for primary load, such as you would find...

25 Somewhere here there's a table that gives

1 these values from 1988 through to the present. Yes,
2 page 13, Table 1.1.3.1. You can find the forecasts
3 associated with the various long-term load forecast,
4 the one that was submitted to the DSP originally in
5 1988. And the values that are in that table for the
6 1992 load forecast up to 1991 inclusive are the
7 actuals.

8 Q. So, in other words, the right-hand
9 column, the first four entries--

10 A. Yes.

11 Q. --in the upper part of that table.

12 A. Yes.

13 Q. All right.

14 A. So you can see that for
15 terawatthours, the time of the DSP we forecasted for
16 1991 143.6 terawatthours, and the load that we got was
17 137.5. That's about 6 terawatthours less or about 4
18 per cent less than the forecast at the time of the DSP.

19 Q. Okay. That's sufficient then. I can
20 look at that and see the trend?

21 A. I think it is very important that
22 cyclical factors be taken into account in any analysis
23 of this sort before one draws inferences. The
24 long-term forecast beyond the first year, too, are
25 essentially trend forecasts. We don't try to track the

1 cycles because it turns out to be extremely difficult
2 in practice to do that; and so that if one is drawing
3 inferences from the fact that we happen to be in a deep
4 recession right now what our forecasting performance in
5 1997 is likely to be, I think that would be an unfair
6 inference.

7 Q. No, Mr. Burke, I'm not suggesting I
8 can simply take the trend and apply it to '97, I'm just
9 trying to get a sense of how -- I think we agree that
10 the long-term forecast is -- that starting point is
11 significantly -- I consider 5 terawatthours
12 significant, and it is significantly changed by
13 reliance on the short term, and I am just trying to
14 understand how -- what kind of uncertainty exists in
15 that forecast; and I take it this is one measure how
16 much you have deviated from actual?

17 A. Yes, but--

18 Q. Thank you.

19 A. --the thing you are interested in,
20 that is quite adequately described in Chapter 6 of the
21 forecast.

22 Q. Well, we have obviously had some
23 debate about that.

24 Now, when you were discussing your --
25 your scenario for the balance of this decade, you have

1 used the phrase "optimistic" when you talked about the
2 form and the -- the if and the form of economic
3 recovery. I recall you used the word "optimistic."
4 You were taking an optimistic view. Do you recall
5 that?

6 A. Yes, I may have used that word. Yes.

7 Q. All right. Can I take from that
8 that, therefore, the risk to your forecast, because you
9 are taking an admittedly optimistic view is not
10 symmetrical?

11 A. What I said... I think I believe
12 what I said was optimistic was the recovery of those
13 particular industries that constitute the difference
14 between the end use and the econometric result; that
15 is, there's 5 terawatthours in the industrial sector
16 and by moving to the forecast in the econometric model,
17 the prospects of those particular industries' recovery
18 may be -- I qualified with the term "optimistic" in the
19 base case.

20 Q. Those are the big industrial--

21 A. Yes.

22 Q. --loads you are talking about?

23 And I take it, therefore -- can I take it
24 therefore that the risk associated with your forecast
25 to that extent is not a symmetrical one?

1 A. Well, that's why I made the
2 qualification. There are lots of other things that
3 could increase the forecast and many people do believe
4 that recovery in Ontario could be quite a bit stronger
5 than the one that's indicated in this forecast in
6 general economically, and so we could have loads from
7 other sources that turn out to be higher than in this
8 load forecast.

9 Q. But you just --

10 A. I consider the risks to be balanced,
11 that's why I made it a median forecast.

12 Q. What do you mean by "optimistic"
13 then?

14 Let me put this to you: Your end use
15 forecast, you have explained. You go out and you speak
16 to the experts about the industries; they give you some
17 feedback; you look at micro trends in particular
18 technologies and what have you. You come up with your
19 end-use forecast. You have said you opted at that
20 point for your econometric forecast based on history,
21 and it is that that you are referring, that choice to
22 go with the econometric over and above what you got
23 from your end-use and those experts was what you just
24 referred to as optimistic. Have I got that right,
25 first of all?

1 You were being -- you were choosing to be
2 more optic -- with the quote, "more optimistic
3 econometric result"?

4 A. For the industrial sector,--

5 Q. Yes.

6 A. --yes.

7 Q. All right. That's good enough.

8 Now, can I take it that overall you get
9 back, I think you have used the phrase within 2 per
10 cent of your previous forecast at the end, and that is
11 for capacity, I assume? Is that right, 2 per cent?

12 A. Sorry. I don't recall 2 per cent as
13 applying to the load forecast.

14 Q. All right. Overall, I take it you
15 still have the view that we are in a self-correcting
16 economy?

17 A. You are talking about the economy
18 now?

19 Q. Yes.

20 A. The economic forecast, yes; but as I
21 pointed out, the reason for the recovery in the economy
22 was not because of so much self-correction as the
23 change to the population forecast.

24 Q. All right.

25 A. If we had not changed the population

1 forecast, we would not have come within 2 per cent in
2 the year 2015.

3 Q. Ah, so then there is a change?

4 A. Yes, and I've made that quite clear
5 in my direct evidence in this document.

6 Q. If we distilled out the change in
7 population, then we are not quite into that "get back
8 to where you were" because it is a self-correcting
9 economy mode any more; we have moved a bit from that,
10 have we?

11 A. Well, I think the extent of the
12 recession has been severe, and it becomes a question of
13 some debate whether the -- we are correcting for past
14 excesses in growth or we are taking from future growth.
15 And essentially the position that we have come to is
16 that there has been some reduction in the long-term
17 growth for a given population level; yes.

18 Q. Okay. Mr. Dalziel, throughout
19 Exhibit 796, or at least in your overheads, you
20 provided corrections which included the years 2016 and
21 2017.

22 MR. DALZIEL: A. Yes.

23 Q. Can I ask you what load forecast did
24 you base those on?

25 A. I think the way the load and years --

1 those couple of years beyond the end of the load
2 forecast, I think they are normally rejected by
3 averaging the growth rate of the last five years--

4 Q. Mr. Burke, I obviously was --

5 A. --projecting that into 2016 and 2017.

6 Q. Sorry? Mr. Dalziel, I didn't mean to
7 cut you off.

8 A. That's all right.

9 Q. Could you just --

10 A. Just using the average of the growth
11 rate in the last five years of the load forecast and
12 applying that to the following two years.

13 [12:00 p.m.]

14 Q. Mr. Burke, I recall I did a somewhat
15 longer-term extrapolation back in Panel 1, and you
16 objected. You said, the forecast ends when the
17 forecast ends. Do you recall that?

18 MR. BURKE: A. I have to admit I don't,
19 Mr. Poch.

20 Q. All right.

21 A. But from my perspective, yes, the
22 forecast ends when the forecast ends. Other people can
23 do what extrapolations they deem reasonable. I am not
24 going to debate with them about it.

25 Q. You are not going to take a position

1 on what should happen after 2015, I take it?

2 A. I think what my colleagues have done
3 here is reasonable, given that there were no other
4 numbers to work with.

5 Q. Okay. Mr. Dalziel, if you turn to
6 page 18 of Exhibit 937, which is the overheads, I am
7 going to refer to the CO(2) emissions there.

8 Mr. Chairman, I am handing out -- this
9 doesn't need an exhibit number because just for
10 convenience I simply reproduced a page from Exhibit
11 452, which was the comparable chart from the Update.

12 I am handing out the CO(2) emissions
13 chart from the Update. For the record, that is page 27
14 of Exhibit 452, and that is the January, '92 Update.

15 Now, Mr. Dalziel, can I take it, first of
16 all, that on page 18 of Exhibit 937 the -- I am looking
17 at the latter period, the dashed line that departs from
18 the upward sweep of the other two and is labelled --

19 THE CHAIRMAN: Wait a minute. Which
20 emission --

21 MR. D. POCH: CO(2) emissions at the
22 bottom of page 18.

23 Q. First of all, identify for me which
24 of the lines -- there is the one that comes from the
25 time of the Update. It is the solid -- is it the

1 middle line in that latter part, the one that sweeps
2 upward along with another?

3 MR. DALZIEL: A. This is on page 18?

4 Q. Yes, bottom of page 18.

5 A. The line that corresponds with the
6 Update is the lighter, solid line.

7 Q. Yes?

8 A. In the early years it is the top
9 line, and in the latter part it is the middle line.

10 Q. Now, so I take it then, looking at
11 the handout I just gave you, that is the fossil option
12 version of the Update?

13 A. Yes.

14 Q. All right. And if you had chosen the
15 nuclear version we would have something similar to what
16 I have just handed you; that is, it is in around the
17 illustrative target, actually below it at the end?

18 A. Yes.

19 Q. All right. But on page 18, the
20 bottom line, "IP", I take it that is "integrated plan"
21 or "illustrative plan"?

22 A. Illustrative plan.

23 Q. With CANDU. You now have that
24 line --

25 THE CHAIRMAN: Well, there are two

1 illustrative plans. Which one do you mean?

2 MR. D. POCH: There is "IP" with IGCC and
3 "IP" with CANDU.

4 Q. So the lower line when we are on the
5 righthand side of this picture, the dashed line in
6 other words, that is the current illustrative plan, the
7 nuclear version of it?

8 MR. DALZIEL: A. Yes.

9 Q. All right. And that is significantly
10 above the possible limit for CO(2)?

11 A. It is above the possible limit?

12 Q. Well, it is in around -- at the end
13 of the period it is in around...what would you estimate
14 that at, 35?

15 A. Thirty-five looks good to me.

16 Q. Teragrams? And in the previous
17 update it was below the 25; it was closer to the 20 by
18 the end of the period, although I agree the period --
19 the years are somewhat different.

20 A. Yes, that was to the year 2014. I
21 would have to look back into Panel 10 evidence.

22 Q. It is around or below the target in
23 the previous version, I believe.

24 A. Yes.

25 Q. Now, can you tell me why with a lower

1 basic forecast on a comparable primary forecast,
2 according to Mr. Burke, in your latest illustrative
3 plans - let's just compare the nuclear version - we see
4 this change in carbon emissions.

5 A. One factor would be that the primary
6 load is a bit higher at the end of the planned period
7 than the DSP Update, but I don't think that would
8 account for the full differences you are pointing out
9 in the figure.

10 The other difference may be the number of
11 additional nuclear units that are assumed to come into
12 service in the latter part of the planning period.

13 DR. CONNELL: Mr. Dalziel, would not the
14 Manitoba Purchase be a significant factor?

15 MR. DALZIEL: Yes, the Manitoba Purchase
16 would also be a contributing factor, and that would be
17 the equivalent of about seven terawatthours of energy,
18 and that additional seven terawatthours of energy in
19 the illustrative plan may well be coming from the
20 existing system, principally the fossil.

21 MR. D. POCH: Q. Mr. Snelson, one option
22 for lowering the carbon emissions would be increased
23 reliance on energy efficiency?

24 MR. SNELSON: A. If it was used to
25 replace the use of coal in generating plants.

1 Q. Okay.

2 A. Yes.

3 Q. Now, just while we are on this I
4 noticed one other slight difference, which may be just
5 semantics, but it was referred to as an "illustrative
6 target" back in 452 and now it is called a "possible
7 limit".

8 Can I take anything from that? Is it
9 Hydro's view that now there is some increased
10 likelihood that this is going to be a regulatory
11 constraint?

12 MR. DALZIEL: A. I think they are
13 intended to mean the same thing.

14 Q. All right. Now, while we are on this
15 question of nuclear fossil and emissions and strategies
16 could you turn to that quarterly report that was made
17 an exhibit earlier, and this is the second sheet of
18 Exhibit 1040.

19 THE REGISTRAR: Do you want it to be
20 given a number?

21 THE CHAIRMAN: We have it already. Can
22 we attach this, Mr. Poch, to make one exhibit?

23 MR. D. POCH: Yes. Yes. I had thought
24 they had been handed out together. They could
25 certainly be stapled. My apologies for not having done

1 that. This is page 18 of the brochure I'm looking at
2 now.

3 Q. First of all, am I reading this
4 correctly, Mr. Snelson, that the change from '91 to
5 '92 -- and this is in each case for the nine months
6 ended September 30th, one significant change there is
7 that the nuclear production has gone down from 54 to 48
8 thousand millions of kilowatthours, so I guess it is
9 terawatthours, and the fossil has gone up from 20 to
10 23? I am reading that correctly?

11 MR. SNELSON: A. I believe you are
12 for -- recognizing this is nine months, not --

13 Q. Sure. And if we were just to
14 extrapolate -- well, before we do that, turn to Exhibit
15 796, attachment J, at page 6.

16 If we look in the year, across the top
17 line, 1992, under the heading "Existing Fossil", the
18 plan in 796 assumes that existing fossil will produce
19 18.2 in 1992, is that correct, terawatthours?

20 MR. DALZIEL: A. Yes.

21 Q. And if we just look then at the most
22 recent information we have, which is this third quarter
23 report, in the first three quarters of the year we are
24 already at 23 terawatthours?

25 A. Yes.

1 Q. And if we just multiply that up,
2 grossed it up by a further quarter it would be about 28
3 terawatthours if this trend continues?

4 A. Yes, it would. And I actually have
5 some preliminary data on that, and it is 28
6 terawatthours. It is a preliminary number to the end
7 of '92 for the fossil system.

8 Q. And nuclear is predicted in your 796
9 as 77/78 terawatthours, correct, for '92?

10 A. Yes.

11 Q. And if the trend that is in the first
12 three quarters of the year that we have here continues
13 the 48 would be roughly 60 terawatthours?

14 A. And that may be the projection of the
15 trend, and my preliminary numbers for the end of '92
16 are 66 terawatthours.

17 Q. All right.

18 A. That is for nuclear.

19 Q. These two things are not unrelated, I
20 take it, that when nuclear doesn't perform as expected
21 you have to -- often you turn to burning fossil?

22 A. Generally, yes.

23 Q. All right.

24 MR. SNELSON: A. I think there are a
25 couple of cautions to be aware of in the comparison of

1 actual data with the projections of the type of
2 appendix J; in that appendix J is for models that are
3 at long-term expectations and that all of the detail
4 about short-term outages and so on that gets reflected
5 in the consistent energy set wouldn't be reflected in
6 the model of appendix J.

7 Q. All right. Changing topics, Mr.
8 Burke, I don't want to repeat the discussion Mr.
9 Shepherd had with you about your price, energy price
10 forecasts versus your forecast for natural load
11 displacing NUGs. He provided a graphic depiction in
12 Exhibit 938. Do you recall that discussion?

13 MR. BURKE: A. Yes.

14 Q. All right. And you indicated that
15 your NUG projection - or your natural NUG, if I may,
16 projection - was based on a model, predictive model of
17 behaviour that was grounded in the empirical,
18 historical data you have; correct?

19 A. Yes.

20 Q. And that this was your prediction
21 despite attachment E -- maybe we should just turn to
22 that, again the price trends. And you show price
23 trends, do you not, at page 51 that would be relevant?
24 This is the industrial sector, most likely forecast?

25 A. Yes.

1 Q. That would be the relevant price
2 trend forecast?

3 I took it from the discussion you had
4 with Mr. Shepherd that you foresaw some non-utility
5 generators having capacity but choosing not to run it,
6 not to operate it because -- or that your model
7 predicted that behaviour based on energy price trends
8 as opposed to the absolute difference?

9 A. The model is a function of changes in
10 energy prices, and as pointed out, beyond the year 2000
11 the relative price of electricity to gas falls fairly
12 rapidly in this forecast, and because of that the
13 equation reacts and reduces the amount of energy from
14 load displacement NUGs.

15 Q. But if we assume for -- Mr. Snelson,
16 is it reasonable to assume 75 per cent efficiency for
17 cogenerators, for example?

18 MR. SNELSON: A. That is towards the
19 high end of the range.

20 Q. All right. Unfortunately, that is
21 the only numbers you have given us. I was just
22 comparing the electricity, 100 per cent efficient,
23 versus natural gas, 75 per cent efficient here, and I
24 saw while the multiplier between gas and electricity
25 may be decreasing there was a significant absolute

1 price advantage throughout the period between those two
2 columns.

3 MR. BURKE: A. I think we are crossing
4 back and forth between what you may - and this happened
5 in the fuel switching discussion - consider to be the
6 rational thing that everybody ought to do versus the
7 behavioural evidence we have.

8 And the equation suggests that while in
9 the past you might have had a situation where the
10 relative prices were such that people who had a
11 cogeneration opportunity at 75 per cent and so on
12 relative price should have suggested they cogenerate
13 and weren't.

14 What the equation is suggesting is that
15 on the evidence, historically the operation of NUGs is
16 such that when the relative prices change these are the
17 results.

18 And I don't have the information to
19 understand all the other considerations that may
20 pertain to the operation of NUGs that may cause people
21 to do things other than what appears on the face purely
22 of the relative price differences to be the logical
23 thing to do.

24 Q. Okay. And this is a case where you
25 have got a model and you have always told us you temper

1 your application of model results with judgment.

2 A. Yes.

3 Q. And in this case you have chosen not
4 to temper the result of the model with judgment about
5 what might be rational in the circumstances?

6 A. Well, I don't have a lot of knowledge
7 about what would be rational in 1997 for the load
8 displacement NUG market, and I have acknowledged with
9 Mr. Shepherd that there is some uncertainty about what
10 people will actually do at that point in this
11 marketplace, but I didn't have much to go on for that
12 period.

13 Q. And these are pretty sophisticated
14 players we are talking about. These are the industrial
15 sector groups where they are cogenerating. We are
16 talking about a relatively sophisticated market group
17 compared to, say, residential customers?

18 A. Well, yes.

19 Q. Yes.

20 A. I don't know that I should be making
21 judgments about this sort of thing, but anyway...

22 Q. Right. Fair enough. And so this
23 sophisticated group despite this absolute difference in
24 price with installed capacity in place your model is
25 telling you for some other reasons there are some

1 barriers, whatever, other factors, it is not going to
2 happen?

3 A. I would like to point out, you have
4 talked about the absolute difference, and I have always
5 been talking about the ratio.

6 There are elements of truth to both
7 camps, but I think the largest is in the direction of
8 the ratio being relevant.

9 The ratio -- if you have a certain gas
10 price, whatever conversion efficiency, it is the ratio
11 of electricity to gas price that counts in the end, not
12 the absolute difference.

13 And it is not apparent to what extent
14 cogeneration facilities are the ones that will be cut
15 back on. There may be some facilities cut back where
16 the overall efficiency is much less than 75 per cent.
17 So the ratio of electricity to gas prices is quite
18 important.

19 As I said, the ratio that we come back to
20 beyond 2000 is quite similar to the ratio that we have
21 now in this forecast.

22 I agree there is some uncertainty as to
23 how in 1997, given the various uncertainties about gas
24 prices and whatnot, the various considerations about
25 how industrial customers can buy from the system, what

1 the price of electricity is in off-peak periods and all
2 kinds of considerations, how exactly this will all
3 operate.

4 Q. Mr. Burke --

5 A. But all I can say is empirically,
6 historically people did cut back at periods when that
7 ratio changed, and I have included that in my forecast,
8 and the total effect of it, total amount at risk in
9 2015 is three terawatthours.

10 Q. Mr. Burke, going back to residential
11 fuel switching, you don't have -- you have told us you
12 don't have a lot of empirical data to work with there,
13 it wasn't tracked, and the fuel switching phenomenon is
14 a relatively new one?

15 [12:21 p.m.]

16 A. That's correct.

17 Q. So isn't it fair to say that, it is
18 not clear that you could take a hands-off approach to
19 residential fuel switching and expect to get the
20 results you project? You really can't say yet, can
21 you?

22 A. You know, at a certain level from the
23 point of view of my forecast, I don't think it really
24 matters.

25 What we have in the DSP Update, is a

1 forecast that suggests a lot of programs will be
2 implemented to achieve fuel switching results. Some of
3 the inputs to that forecast we no longer deem to be
4 valid, but, nonetheless, a certain amount of
5 program-driven fuel switching was anticipated in that
6 forecast.

7 We now have a different different
8 relative price regime; one way or another, we're ending
9 up in a situation where roughly the same amount of fuel
10 switching happens through the marketplace. If the
11 prices for natural gas move in the -- back to where we
12 were last year, we may switch into more programs.

13 Q. You have got to --

14 A. We have got to go into programs for a
15 variety of reasons, if people aren't switching. The
16 bottom line from my perspective, in producing the
17 primary load forecast, is that I'm getting it roughly
18 right and that's what--

19 Q. The bottom line is this --

20 A. --I'm trying to do here.

21 Q. The bottom line is this roughly 31
22 per cent of the roughly 40 per cent of fuel switching -
23 of electric heating - which you say is economic to fuel
24 switch.

25 You are going to get that one way or the

1 other. You are saying if the market doesn't do it,
2 then you will kick in programs to do it.

3 A. The particular numbers you are using
4 are for the new segment of the commercial market--

5 Q. I apologize,--

6 A. --and I wouldn't want to generalize--

7 Q. --whatever the numbers are.

8 A. --to anything from those.

9 Q. You have got this target which was
10 premised on what programs would get you, and you are
11 saying if the market doesn't do that now naturally,
12 then you will crank up the programs again?

13 A. Because we see an economic potential
14 for fuel switching and we currently see that the market
15 is implementing fuel switching at a pretty good rate,
16 but I think the reason we have some fuel switching
17 program numbers in the forecast is, that at some point
18 we may wish to enter the marketplace to increase the
19 rate of uptake of fuel switching --

20 Q. And, Mr. Burke, you are projecting
21 that through that means, if needed, or through the
22 market if left to its own, you are going to get roughly
23 the kind of the 31 per cent number. If the market
24 doesn't do it, then you are going to crank up the
25 programs to do it.

1 You have got a number in mind, and you
2 have just told me from your perspective, it doesn't
3 really matter how it is attained. It is going to
4 affect Mr. Shalaby's budget, but, you are going to
5 count on it being there one way or the other?

6 A. Yes, but it should be quite clear
7 that the potential in the market place has also changed
8 from last forecast.

9 Q. Yes.

10 A. It's not like I'm targeting on some
11 particular number. We are looking at the economic
12 opportunities, and the economic opportunities have to
13 be reconsidered each time.

14 Q. But, Mr. Burke, we are now in a
15 situation where the economics have obviously improved
16 because you are saying the market is going to do it?

17 A. The economics for central electric
18 furnaces, to take that particular example, have
19 improved; but interestingly enough, my evidence is,
20 that for baseboard-heated houses for whatever reason
21 the costs were understated, it is not economic, we now
22 think, to have programs to deliver that market.

23 So there has been some gains and some
24 losses. In fact, what is interesting, is that the rate
25 of uptake in the central electric furnace more than

1 offsets the loss of the baseboard-heated market for the
2 residential sector. But we don't have that sort of
3 result in the commercial sector.

4 Q. You are getting a lot of this --
5 well, let me leave that.

6 Mr. Shalaby, is it true that there has or
7 will be set up a strategic load building group in the
8 corporation?

9 MR. SHALABY: A. I'm not aware of that.

10 MR. D. POCH: Mr. Chairman, those are my
11 questions.

12 Thank you.

13 THE CHAIRMAN: Who is next?

14 MR. MATTSON: Energy Probe, Mr. Chairman;
15 however, my friend from NAPA is going to precede me.
16 He will be taking approximately 15 to 20 minutes, and I
17 will follow.

18 THE CHAIRMAN: All right. That is good.
19 Mr. Colborne, you will be next, then, is that right?

20 MR. COLBORNE: Yes.

21 THE CHAIRMAN: Because of travel
22 commitments, we will start at a quarter to two, but we
23 might have to stop sharp at three no matter what is
24 happening.

25 I just want to make people aware of that

1 at this time.

2 MR. MATTSON: Mr. Chairman, that will
3 result in our cross-examination spilling over to
4 Monday, and as long as there isn't a problem with that,
5 that is --

6 THE CHAIRMAN: Well, we cannot help that.

7 THE REGISTRAR: Please come to order.
8 This hearing will adjourn until a quarter to two.
9 ---Luncheon recess at 12:27 p.m.

10 ---On resuming at 1:48 p.m.

11 THE REGISTRAR: Please come to order.
12 This hearing is now in session, please be seated.

13 THE CHAIRMAN: Mr. Colborne.

14 MR. COLBORNE: Good afternoon, Mr.
15 Chairman, members of the board. I have relatively few
16 questions of this Panel.

17 CROSS-EXAMINATION BY MR. COLBORNE:

18 Q. I would like to begin with a couple
19 that I think are in Mr. Burke's sphere, and these are
20 primarily in the nature of clarification matters.

21 Sir, I would refer you first to the load
22 forecast documents, that is Attachment C to the Exhibit
23 796. And I will just read you a passage, I don't think
24 you have to actually find it. This is just by way of
25 orienting you to the subject matter which my question

1 will address.

2 On page 47, there is a reference to
3 continuing weakness in the electric-intensive
4 industries - mining, pulp and paper, steel - and
5 commercial real estate is impacting upon the load.

6 Now, if one looks at the short-term load
7 forecast, there is a description here under the heading
8 "Regional Estimates" as to, I take it, part of the
9 process by which conclusions of that type are reached.

10 And I am looking at page 4 of Appendix 2,
11 is Appendix 2 to the Attachment C to Exhibit 796, and
12 on that page toward the bottom, we have a brief
13 description of how the regional estimates are
14 developed.

15 Am I correct, sir, that is via that
16 process - among other processes, no doubt - that
17 Ontario Hydro reaches the conclusions or observations
18 of the type that I first read to you; that is, having
19 to do with continuing weaknesses in the
20 electric-intensive industries, and so on? Is that one
21 of your principal sources of information?

22 MR. BURKE: A. It's one of the sources.

23 The information we get from our direct
24 industrial customers about what they see for their
25 loads for the next few years is definitely one input.

1 We also go directly, though, to industry
2 associations and consultants that are familiar with the
3 industry as a whole - like the steel industry or the
4 pulp and paper industry - to seek their advice on the
5 prospects for that industry in general terms.

6 Q. Very well. I would like to know if
7 any of the regions that are referred to there include
8 one or more that roughly correspond to what Ontario
9 Hydro refers to as the "west system"?

10 A. The west system is the northwest
11 region.

12 Q. Very well. Are those regional
13 estimates broken out in any separate report, or at
14 least, are the data available separately for the
15 northwest region?

16 A. I don't believe it's published
17 anywhere at this point; but in aggregate by customer
18 class, we do have information for the west system, in
19 particular, and the other regions. That is available.

20 Q. Yes. I might ask then if I may have
21 an undertaking that that data be produced for the west
22 system?

23 A. In aggregate by customer class for
24 the five years of the short-term forecast, I'm prepared
25 to do that, yes.

1 Q. Thank you.

2 THE CHAIRMAN: Number please?

3 THE REGISTRAR: 940.20.

4 ---UNDERTAKING NO. 940.20: Ontario Hydro undertakes to
5 provide aggregate by customer class
6 for the five years of the short-term
forecast for the west system.

7 THE CHAIRMAN: Thank you.

8 MR. COLBORNE: Q. Mr. Burke, another
9 question of a similar nature. You discussed here on
10 January 5th with Mr. Castrilli the manner in which your
11 demographic projections are developed, and I would like
12 to know if those projections also, in any respect, are
13 done regionally and specifically whether your northwest
14 region includes, in the work that you do, it's own
15 demographic projection?

16 MR. BURKE: A. The answer is no.

17 Q. I believe you referred to the various
18 sources that you used to develop these projections in
19 your discussion with Mr. Castrilli, and principally, I
20 think, you were referring to Statistics Canada, but you
21 may have mentioned others.

22 Are there any such sources - other than
23 Statistics Canada, the ordinary source for this type of
24 data - that you use that may break the demographic
25 projections down by regions, such as the northwest

1 region?

2 A. Well, first I should clarify. What I
3 was suggesting, was that our projection might be
4 compared to others prepared by Statistics Canada, and I
5 also mentioned the Ontario Government's Ministry of
6 Treasury and Economics preparing similar projections
7 for the province as whole.

8 I really am not aware of whether or not
9 either of those two other groups prepare projections on
10 a more disaggregated basis than for the province as a
11 whole. I know we don't.

12 Q. Thank you.

13 A couple of questions on hydraulic,
14 please. I am not exactly certain which of the
15 witnesses may want to attempt these.

16 The first is primarily, clarification,
17 and has to do with the reference on page 11 of Exhibit
18 796. At the bottom of the page, to a 10 per cent
19 variation, and I will read the relevant sentence:

20 These newer SIC's issued in November
21 can be found in Attachment D. These new
22 values, if applied to the hydraulic
23 program, would tend to reduce the
24 long-term benefits of hydraulic options
25 by about 10 per cent, but would increase

1 the benefits of deferring.

2 Now, my clarification question is: That
3 10 per cent referred to in the passage just read, has
4 that been taken into account or was it not taken into
5 account in Table 1.1 which appears at page 3 of the
6 exhibit, and I which I understand, to be more or less
7 the concentrated expression of some analysis that you
8 did on the economic impact of various deferral and
9 mothballing scenarios?

10 MR. SNELSON: A. The 10 per cent refers
11 to the November system incremental costs which are in
12 Attachment D.

13 Q. Yes.

14 A. And the table in 1.1 is based on
15 March incremental costs, not the November incremental
16 costs.

17 Q. Very well. Thank you.

18 The exhibit itself is dated December, so
19 I wanted to be very clear on that, and I wasn't certain
20 from my reading. Thank you.

21 A. I would point out that the 10 per
22 cent refers to the long-term benefits, and not to the
23 benefits of deferring. So the...

24 Q. Yes, I believe that that distinction
25 is reasonably clear.

1 However, would you agree that if one took
2 that same 10 per cent and factored it into the analysis
3 that led to Table 1.1, the table might look or would
4 look somewhat different? We don't know how much, but
5 it would look somewhat different.

6 A. It would look somewhat different,
7 yes.

8 Q. One additional question with respect
9 to hydraulic.

10 Also at page 11 of Exhibit 796, the
11 following passage appears, this is at the end of the
12 second paragraph on the page:

13 All of the hydraulic options were
14 economic to defer. This does not
15 indicate that they are not economic over
16 the long term. It does indicate that
17 they have increased economic benefit if
18 implemented later.

19 My suggestion, Mr. Snelson, is that this
20 means as well or this indicates as well one more thing,
21 and that would be, that the hydraulic options tended to
22 be among the least economical of all the options
23 available?

24 A. I don't think you could conclude that
25 from those statements.

1 Q. And maybe we could explore that for a
2 moment.

3 If one is ranking all of the options, in
4 terms of economics purely, or at least that is my
5 understanding of Table 1-1, and the hydraulic options,
6 all of them tend to be at that end of the scale where
7 it is economic to defer, does that not also lead
8 practically, logically, to the conclusion that there
9 are also in a broader sense, less economic?

10 A. No. It doesn't follow.

11 The Table 1-1, I was at some pains in my
12 direct evidence to point out that it was the economic
13 ranking of deferral, and that it was not the economic
14 ranking of the options.

15 So it is quite possible; and indeed we
16 believe it is the case, that some of the options that
17 are shown as having positive economics to deferral, are
18 also economic in the long run, despite that.

19 Q. Yes. Well, that is said and I am not
20 taking issue with that.

21 The distinction may be this, and perhaps
22 I will just ask you: Is it that because of the
23 scheduling of investment that an option which is
24 economic to defer, may nevertheless, not be objectively
25 or in some broad sense uneconomic?

1 A. Can you say that again, I'm not sure
2 I quite caught that?

3 Q. From a purely commonsense point of
4 view, maybe I will just try to introduce it this way,
5 from a purely commonsense point of view, one would
6 think that if you rate all the options and all of the
7 ones that were economic to put off -- or, excuse me,
8 all the ones that were hydraulic were among the group
9 that was economic to put off, one would think that
10 those would also be generally non-economic.

11 So, I am trying to get at the distinction
12 between what causes an option to be generally
13 uneconomic and what causes an option to be economic
14 only in respect of deferral. And I am asking if that
15 has to do with the staging of investment?

16 A. I don't believe it does. Perhaps I
17 can be a little helpful here in that if we go to Table
18 1-1, and if you have that in front of you, then the
19 options that are above the line that says: Deferral
20 mothballing of projects listed above is economic, to
21 some degree or another in this ranking estimated as
22 being economic to defer, and the ones below that are,
23 to some degree, less -- uneconomic to defer in this
24 ranking.

25 And the first point I would like to make

1 is that, the only options that are in this table are
2 the ones that were left in the plant, and so you won't
3 find any new nuclear plant, or any new combustion
4 turbines, or any new fossil plant in this list at all,
5 because they had already been taken out of the plant.
6 So the only ones that have been considered for deferral
7 are the ones that are left in. And so you can't
8 conclude that -- anything about the economics of
9 hydraulic relative to nuclear and fossil in this case,
10 from this.

11 The other point I would make is that,
12 most of the things that are below the line and are
13 economic not to defer, or uneconomic to defer, are
14 mothballing of existing plant. And this is
15 substantially the situation you would expect to find in
16 a surplus capacity situation, and that is that in a
17 surplus capacity situation then the economics of
18 building new plant are relatively weak, but you would
19 probably still want to continue to operate your
20 existing plant; you don't want to bear the additional
21 cost of a new plant.

22 And items like Mattagami and Niagara have
23 relatively little economics to deferring because of
24 their energy benefits that they have, even in the
25 period of capacity surplus.

1 [2:03 p.m.]

2 Q. Thank you. In attachment H to
3 Exhibit 796, there's a passage which both Mr. Castrilli
4 and Mr. Shepherd and perhaps Mr. Poch looked at, and
5 perhaps I will try and restrict myself to just one or
6 two approaches to it, and that is, in the paragraph at
7 the bottom of the page, that is, the page 1 of Schedule
8 1 of that attachment, one finds the following:

9 Because there may be the opportunity to
10 obtain an EA approval with a 10-year
11 shelf life with minimal work by Hydro, an
12 allowance for this minimum effort should
13 be included in budgets for the first six
14 months of 1993. This allowance should
15 not include the cost of a full EA hearing
16 or intervenor funding.

17 I hope I can restrict this to two
18 questions. The first is: Does that passage depend
19 upon Ontario Hydro receiving approvals in respect of
20 its hydraulic plan from this, as a result of this
21 hearing?

22 Is that part of the logic that draws
23 Ontario Hydro to the conclusion that it may be able to
24 obtain ministerial approval without the necessity of
25 hearing, or is it entirely independent of that?

1 MR. SNELSON: A. I believe there's been
2 extensive discussion with Mr. Campbell, and as to the
3 status of the actual environmental assessment for
4 Little Jackfish and the -- and that the ability to
5 obtain whatever may happen in that process is quite
6 separate than what is happening here and is subject to
7 its own dynamics as to the status of the review
8 suggested, whatever is in the government review and the
9 public comments on it.

10 Q. And so it is separate. If I can just
11 put it briefly, I read the transcripts, and I was left
12 with some doubts. So if I know hear you saying they
13 are separate and distinct, then I understand very
14 clearly what the evidence is.

15 A. They are separate processes. There
16 is a linkage in that, as I understand it, the Little
17 Jackfish problem -- program -- Little Jackfish project,
18 I'm sorry, is depending upon a general approve of a
19 range of hydraulic capacity and energy through this
20 process; but I think that -- that is about as far as I
21 can. The rest is into the legalites of the matter.

22 Q. Very well. My second question is:
23 What does the 10 years mean? I want to find out where
24 the starting point is of this 10 years, and I think I
25 may understand it. It seems to be from ministerial

1 approval. Is that where 10 years starts to run?

2 A. I am not familiar with it. Mr.
3 Campbell was giving some information on the status of
4 that, and I believe it relates to something from the
5 government review of Little Jackfish project
6 environmental assessment.

7 Q. Would you agree that the factual
8 background upon which that EA was based was developed
9 in the early and mid 1980's?

10 A. I am trying to remember when the
11 environmental assessment was submitted and --

12 MRS. FORMUSA: I think I can help there.
13 I think it was 1989.

14 MR. COLBORNE: I was referring to the
15 full background which led to the drawing of the EA
16 document itself, but that is the studies, and so on,
17 leading up to it; but I would not be pursuing this
18 matter with this witness. Thank you, Mr. Chairman.

19 THE CHAIRMAN: Yes, but would think the
20 10 year would probably run from the time which -- you
21 know, when the action was taken, either the government
22 approving the assessment or the approval given by the
23 Board. It is just a guess, but I think that the
24 context of what is said here would probably be that 10
25 year time.

1 MR. COLBORNE: I, in reading the comments
2 made by Mr. Campbell, thought that it was from the time
3 of the ministerial approval which may follow the --
4 which would follow the decision of the Board if it was
5 a hearing, but I was not exactly sure --

6 THE CHAIRMAN: Well, the ministry could
7 come either way. It could come -- it could come, as I
8 understand it, without any hearing at all.

9 MR. COLBORNE: Yes.

10 THE CHAIRMAN: Or it could come following
11 a hearing.

12 MS. PATTERSON: But it would be after the
13 Board's approval unless there was an appeal of the
14 Board's decision in which case it would be from
15 Cabinet's decision.

16 MR. COLBORNE: Well, that is another
17 factor, and I am glad you pointed that out. I would
18 like to have on the record, perhaps this isn't the
19 panel to elicit the factual information but just how
20 long we are talking about, because 10 years now seems
21 to be expanding into even more than 10 years, but we
22 can argue that when the time comes as long as we have
23 all the facts.

24 THE CHAIRMAN: Well, this 10-year period
25 is not -- it has not been stipulated by anybody yet,

1 that anyone is bound by.

2 MR. COLBORNE: That's right.

3 THE CHAIRMAN: It is just a suggestion in
4 a memorandum from the Chief Executive Officer.

5 MR. COLBORNE: Q. A couple of matters in
6 relation to NUGs. Perhaps it could be clarified for me
7 what is the nature of the -- what has been referred to
8 as the hold on under five megawatt NUGs. By hold, does
9 this mean that something that was put on in December
10 but could be taken off in February and put on in July,
11 and so on? What is the nature of something called a
12 hold?

13 MR. SNELSON: A. My understanding is
14 that it's a notification that all these projects are
15 being reviewed and that each project will be review on
16 its own merits, and that may take some time. We don't
17 have a precise estimate. I have indicated that my
18 information is that could be of the order of two
19 months.

20 Q. The NUG forecast then, that is
21 attachment F to 796 where we see in 1997, 1998, 1999
22 and 2000, the 25 megawatts that was referred to earlier
23 as new NUG production coming on stream. I thought the
24 evidence was that that referred to megawatts of power
25 respected by NUGs which were in negotiation prior to

1 the hold; but was I wrong that that is Hydro's estimate
2 of megawatts of power represented by new NUG generation
3 including what was in negotiation prior to the hold but
4 also possibly including others, other projects not yet
5 in negotiation?

6 A. I think your last statement is
7 correct. It includes both those that were under
8 negotiation at the time that this was prepared plus an
9 allowance for new under five megawatt NUGs that might
10 be accepted under the term that apply at that time.

11 Q. I see. Is there a break down in
12 regard to these projections, that is, the 25 megawatts
13 per year and whatever may be included in the earlier
14 years that is a break down as between hydraulic and
15 other, for instance, or a break down by type?

16 A. Not to my knowledge. And, as I say,
17 this is the situation prior to the hold. This is the
18 situation as it was after the October Board meeting.

19 Q. And so the consequence of the hold
20 could well be that these numbers will change. Is that
21 fair to say?

22 A. Yes.

23 Q. Is there a comprehensive list of the
24 projects in negotiation as of the time of the hold or
25 an analysis by type?

1 A. That information has to exist. I
2 don't have it.

3 Q. And what about by region? Would your
4 answer be the same?

5 A. Yes.

6 MR. COLBORNE: I am asking for an
7 undertaking then that the data are apparently and that
8 would be as of the time of the hold, or if more
9 convenient, as of the time of production of the data
10 that appears in attachment F how are these under five
11 megawatt projects broken down, one, by type, and, two,
12 by region?

13 THE CHAIRMAN: First of all, you're
14 talking only about under five megawatts; is that right?

15 MR. COLBORNE: Yes.

16 MR. SNELSON: I believe we probably can
17 give such an undertaking subject to the normal
18 considerations regarding confidentiality.

19 MR. COLBORNE: Absolutely.

20 MRS. FORMUSA: I think I will -- we will
21 check into it, and if we have problems with respect to
22 confidentiality, we will let Mr. Colborne know. If we
23 can provide that information, we will.

24 THE CHAIRMAN: We will give that number
25 now. 940.21 is it?

1 THE REGISTRAR: 21, yes.

2 ---UNDERTAKING NO. 940.21: Ontario Hydro undertakes
3 to provide (1) The data at the time of
4 the hold, or if more convenient, as of
5 the time of production of the data that
6 appears in attachment F, how these
7 under five megawatt projects are broken
8 down, one, by type, and, two, by region;
9 (2) A breakout of the type of NUGs
10 reflected in chart under the categories
11 of "gas-fired generation",
12 "cogeneration", "hydraulic" and "small
13 hydraulic".

14 MR. COLBORNE: Q. Mr. Snelson, one
15 question in regard to the Manitoba purchase. You've
16 already told us that cancellation will have impacts on
17 the scope and timing of transmission plans; that this
18 is being reviewed and that we will be advised in due
19 course.

20 I wanted only to refer you to a comment
21 that you made on January 5th in Volume 174 of the
22 transcript at page 30,443.

23 MR. SNELSON: A. I'm sorry, the page
24 number was?

25 Q. 30,443. Here you were discussing
with Mr. Campbell some of the implications of -- for
transmission of the cancellation of that purchase. And
beginning on the second line at the top of that page,
you are saying then there was a reduction in the other
needs for the transmission through Northern Ontario

1 associated with the purchase.

2 And, sir, if you could just take a quick
3 look at the context of that comment of yours, and tell
4 me, does that -- is that saying that there were other
5 reductions in transmission requirement that Ontario
6 Hydro was aware of in Northwestern Ontario at the time
7 of cancellation of that purchase?

8 A. Yes. There was an estimate that the
9 time when we would need to build the east/west tie for
10 reasons other than the Manitoba purchase. It was later
11 in time than it was -- than the previous estimate of
12 when we would have had to build the east/west tie even
13 if we didn't go ahead with the Manitoba purchase.

14 Q. Can you provide me with any further
15 particulars of what it was that caused that situation
16 where the improvements would not be required until
17 later in time?

18 A. One factor I am aware of is a
19 decision to extend the application of discount demand
20 in service to the west system loads which meant some
21 loads on the west system would be considered
22 interruptible, and that was one effect that would
23 reduce the need for transmission in that area.

24 Q. Do you recall any others at this
25 time?

1 A. There would be generally shifting all
2 the factors that effect transmission shift the level
3 from time to time like loads and estimates of other
4 generation, and so on, but I am not aware of any other
5 specific.

6 Q. Would I be safe in concluding that
7 when you say that the need for upgrading the east/west
8 line would arise a little later, that that is very much
9 the same as saying that the load was less or the
10 expected load was less or that the demand on the system
11 was less? Less than previously anticipated, I should
12 say.

13 A. I think we're not sufficiently
14 familiar with the details to be able to confirm that.

15 Q. Just one more question. This arises
16 in attachment A to Exhibit 796, and this is a matter
17 which Mr. Poch explored and so I will be looking at
18 just one aspect of it and seeking clarification only.

19 In attachment A, one finds at page 3 an
20 outline of the various factors that were taken into
21 account in assessing the various projects. And if I
22 read the paragraph --

23 A. Excuse me. Are we on page Roman --
24 small Roman numeral "iii" or --

25 Q. No, on page 3?

1 A. Three at the bottom of the page.

2 THE CHAIRMAN: It's headed the 1992
3 Review Process.

4 MR. COLBORNE: Yes.

5 MR. SNELSON: Okay.

6 MR. COLBORNE: Q. The paragraph at the
7 bottom of the page, if I read it correctly, says that
8 there were three general types of matter examined, the
9 first were economic criteria; second, rate on
10 environmental impacts; and, third, other implications.
11 That is my summary reading of that paragraph.

12 Now, what I would ask you to clarify for
13 me is, when one looks at the Mattagami and Niagara
14 development projects, these are the ones that where the
15 decision was made not to defer, one sees references to
16 capital requirements in each case; with respect to
17 Niagara, one half of a billion dollars, and with
18 respect to Mattagami, .4 billion dollars.

19 Now, am I correct that in regard to those
20 two projects, the total of those two sums, that is
21 almost a billion dollars, would be capital requirements
22 that will be expended earlier in time than would be
23 needed to satisfy the system's power needs? And for
24 that reason, the implementation prior to the -- to the
25 need, that is the system need, would be for reasons

1 other than the economic criteria?

2 MR. SNELSON: A. I think we have a
3 number of factors in there. First of all, the capital
4 costs of these projects, if they are not differed and
5 given that it is during a period of surplus, do occur
6 earlier in time than if they were built only at the
7 time when they were needed for their capacity, and they
8 also have energy benefits but if they were built only
9 when needed for the capacity.

10 The economics that one has to compare has
11 to go beyond just capital costs. It has to look at the
12 balance of what is the cost of spending the capital
13 sooner which, of course, has a higher present value if
14 it is spent sooner, and that is a cost, and that is
15 compared against the savings operationly that come from
16 having additional hydraulic capacity in terms of
17 reduced fuel costs and reduced operating costs on the
18 system.

19 So the economics has to take into account
20 both sides of that equation, and table 1-1 of Exhibit
21 17, which shows that these projects have very little
22 costs or saving associated with differing them, really
23 says that the cost of advancing the capital is
24 approximately equal to the operating benefits of having
25 those plants sooner rather than later. That, I think,

1 puts the economics into perspective.

2 [2:25 p.m.]

3 I am trying to recollect the end of your
4 question. It was something to do with whether in fact
5 other factors were the major consideration?

6 Q. The difference in dollars between -
7 let's take Niagara - bringing Niagara on in year A as
8 opposed to year B, the purely economic differences, and
9 I think you have agreed that there must be some because
10 these have been identified as appearing above the line
11 in table 1.1.

12 The purely -- the dollar difference
13 between those two must be represented or offset by
14 these non-economic considerations; that is, rate and
15 environmental impacts and the other implications. That
16 would be the only available rationale for spending
17 those extra dollars, whether it is only \$2 or who knows
18 how much.

19 A. Yes, the other benefits of the
20 project are seen to be outweighing the small economic
21 penalty of spending the money sooner rather than -- and
22 developing projects sooner rather than later, and I
23 think you will find that is addressed directly for
24 Niagara and Mattagami in the Executive Summary of
25 attachment A.

1 Q. Yes. You referred Mr. Poch to that?

2 A. Yes.

3 Q. I was aware of that. When you say
4 "small" in the context of your answer to that last
5 question you are using "small" in exactly the sense
6 that it is used in table 1-1?

7 A. Yes.

8 Q. But we don't actually have a number
9 for that. We just know it is small relative to large?

10 A. If you go to attachment G to Exhibit
11 796--

12 Q. Yes?

13 A. --figure 4.1 on page 13 of that
14 attachment, this is the data that is behind table 1-1
15 of Exhibit 796, and you will notice that this is
16 complete with numbers throughout. It doesn't have the
17 smalls and larges.

18 And for Mattagami it shows a net cost in
19 present value terms, 1992 present value terms in the
20 far left column.

21 Q. Sorry, that would be the far right
22 column?

23 A. Far right column, sorry, of \$11
24 million as being the present value benefit of deferring
25 that project from 1998 to 2008.

1 For Niagara, which is two lines down the
2 table, there is a bracketed (23), which means that
3 actual evaluation showed a saving -- sorry, showed a
4 cost deferring as a saving to keeping the project on
5 schedule of \$23 million, and there is some discussion
6 on page 12, which immediately precedes this table, as
7 to why the judgment was made with more recent data that
8 cost deferring would probably turn out to be a small
9 saving of deferring.

10 MR. COLBORNE: Thank you. Those are my
11 questions.

12 THE CHAIRMAN: Thank you, Mr. Colborne.
13 Mr. Rodger?

14 MR. RODGER: Thank you, Mr. Chairman.

15 Mr. Chairman, I am going to be referring
16 to three documents in my cross-examination: Exhibit
17 796, transcript volume 152, and I also have a handout
18 that I would also like marked an exhibit, please.

19 THE REGISTRAR: That will be number 1041.

20 ---EXHIBIT NO. 1041: Cross-examination handout of
21 Mr. Rodger.

22 THE CHAIRMAN: What is 796, Mr. Rodger?

23 MR. RODGER: That is the Hydro exhibit.

24 THE CHAIRMAN: Oh, I'm sorry. That won't
25 get me many marks for today's effort. [Laughter]

1 CROSS-EXAMINATION BY MR. RODGER:

2 Q. Panel, I first have some questions
3 really of clarification that have arisen from your
4 direct evidence in this Panel, and the first is
5 directed to you, Mr. Snelson.

6 I am really unclear from the evidence to
7 date what Hydro's immediate plans are for Lakeview.
8 There has been some discussion about early retirement
9 of units, there has been other discussion about
10 mothballing, but what are the immediate plans as we sit
11 here today?

12 MR. DALZIEL: A. The immediate plans
13 that are -- I guess as of January 1st this year to
14 remove from service Lakeview units 3 and 4, and later
15 on this year, in April, to remove units 7 and 8 from
16 service.

17 Then, I believe there are also some
18 decisions to hold back any capital expenditures
19 associated with those units, and those would be capital
20 expenditures that would otherwise have been spent if
21 the units were remaining in service and expected to be
22 ready and available to the system.

23 Q. So I take it from your words "remove
24 from service" and your later description of "holding
25 back capital" that the immediate decision is to

1 mothball as opposed to early retire?

2 A. Well, I think we had a little bit of
3 a discussion earlier on about the -- that there was
4 still pending some decisions whether they would be
5 mothballed or whether they would be declared as
6 officially early retired. And so, for the time being
7 they are removed from service, and those decisions as
8 to whether there will be mothballing activities or
9 whether they will be declared to retired have yet to be
10 taken.

11 Q. You would agree with me, Mr. Dalziel,
12 that the actual category of what is to be done is
13 important, not the least of which is from an accounting
14 standpoint. There is a much different treatment as to
15 how you would treat mothballing a unit as opposed to
16 early retire of a unit?

17 A. That's correct.

18 Q. If you mothball, as I understand it,
19 then the asset or the facility still remains an asset
20 and what you are basically saving is the OM&A, whereas
21 if you retire it then you have got to write down on the
22 books the value of that asset, and that will in turn
23 have an impact on your revenue requirement.

24 A. You are getting into an area that I
25 am not familiar with, but in general that's correct.

1 Q. If you could turn, please, to Exhibit
2 796, attachment G, I have another question of
3 clarification, and it is page 15 of attachment G and
4 under the middle box it describes surplus management
5 and capital project impacts on electricity rates with
6 the middle box showing non-utility generation.

7 It describes replacement generation of
8 four terawatthours for lost NUGs at \$80 per megawatt
9 hour assumed to come from low sulphur coal.

10 Am I correct, first of all, that that \$80
11 per megawatthour, is that figure in 2002 dollars?

12 A. Yes, it is.

13 Q. I wonder if you could now, the same
14 attachment, turn to page 9, paragraph 3.5.1, and this
15 is a description of NUGs at 75 per cent average
16 capacity factor, and the average cost there is 6 cents
17 per kilowatthour in 1997 dollars or \$60 per
18 megawatthour.

19 My question is: Is the difference in
20 price, that \$60 dollar figure to the \$80 figure, is
21 that solely because of the difference in the year of
22 dollars from '97 to 2002?

23 A. That would be my understanding, yes.

24 Q. Now, Mr. Colborne actually asked this
25 question just recently in his cross-examination, and it

1 has to do with Undertaking 940.21.

2 What I was going to ask is for attachment
3 F, which was the breakdown of the NUGs, I was going to
4 ask given the breakout that is on that attachment F if
5 I could get a breakout of the type of NUGs reflected in
6 that chart under the categories of "gas-fired
7 generation", "cogeneration", "hydraulic" and "small
8 hydraulic".

9 I am wondering whether that can be made
10 part of that Undertaking 940.21, subject to the
11 conditions that Mrs. Formusa articulated.

12 MRS. FORMUSA: Yes, subject to the same
13 condition.

14 MR. RODGER: Thank you.

15 THE CHAIRMAN: That is part of -- I just
16 forget the number now.

17 MR. RODGER: I have 940.21.

18 Q. One final question of clarification.
19 If you could turn to attachment J, please, and if you
20 could turn to table A.1.1.

21 My particular concern is under the fuel
22 conversion part of this chart which makes reference to
23 Lambton and Nanticoke, and there are a number of
24 symbols before the station. One, for example, has
25 X LAM, ZX LAM.

1 Could you tell us what those symbols
2 mean, please?

3 MR. DALZIEL: A. Just in general terms
4 the Xs and the Zs, the prefixes indicate whether FGD or
5 sulphur scrubbing equipment is installed before SCRs,
6 the NOx control equipment or vice versa. So those
7 symbols can reflect the order in which the emission
8 controls are being installed in the units.

9 Q. Is that the same if you move to the
10 right along that chart where we have Lambton 3, Lambton
11 4, or are those units of the station?

12 A. The LAMB 3, L-A-M-B 3, for example,
13 is referring to Lambton unit 3.

14 THE CHAIRMAN: Just what does X mean?
15 When I see X what does that tell me?

16 MR. DALZIEL: The X LAMB that is in the
17 third line --

18 THE CHAIRMAN: The LAMB stands for
19 Lambton?

20 MR. DALZIEL: Yes. The X LAMB is
21 referring to combustion process modification.

22 THE CHAIRMAN: I'm sorry?

23 MR. DALZIEL: CPMs? Combustion process
24 modifications?

25 THE CHAIRMAN: Right. Does that mean

1 that they are there and they will be part of that?

2 MR. DALZIEL: That means in 1993 Lambton
3 unit 3 would have CPMs installed. The following year
4 Lambton unit 4 will have the CPMs installed. By 1996
5 the whole station will be equipped with combustion
6 process modifications.

7 The X LAMB 3-4 beneath that in 1995 is
8 indicating that FGD equipment will be installed and
9 ready for operation on Lambton units 3 and 4.

10 Just to finish off the Lambton station,
11 if you want me to do this very quickly, then the next
12 entry for Lambton is under the year 2001. The ZX LAMB
13 3-4 means that units 3 and 4 will now be also equipped
14 with SCRs, and the last entry for Lambton under the
15 year 2009 is indicating that it will be equipped with
16 both FGD and SCRs.

17 Would you like me to quickly run through
18 the Nanticoke line?

19 MR. RODGER: Q. Please.

20 MR. DALZIEL: A. The entries for
21 Nanticoke under between the years 1999 and 2003 - that
22 is, NAN 3-4 and NAN 5-6 - those units are being
23 equipped just with SCRs at that time, and then in the
24 year 2013 the NAN 1-2 is being equipped with FGD and
25 SCR. And the S NAN 3-4 and the S NAN 5-6, they already

1 have SCRs; they are now being equipped with FGD as
2 well.

3 Q. Thank you. Mr. Dalziel, this table
4 A.1.1, it is an illustrative plan.

5 When we had discussions in earlier Panels
6 about fuel conversions I take it in those earlier
7 discussions that the decision had not been made yet to
8 actually -- or that those stations, Lambton and
9 Nanticoke, would be converted.

10 Has that decision now been made or is it
11 still uncertain?

12 A. This table is reflecting the
13 illustrative assumptions on the emission controls.
14 This is consistent with assuming \$3 billion in capital
15 expenditures on emission controls that are being
16 deferred in time from what we discussed earlier in
17 Panel 10, and that being the case then the emission
18 controls that we see in this table are consistent with
19 that.

20 Q. But the actual decision to do these
21 fuel conversions, that decision hasn't actually been
22 made yet? It is still uncertain whether the
23 conversions will be done in fact?

24 A. That's correct, with the exception of
25 the CPMs at Lambton by '96 and the scrubber units at

1 Lambton for 1995.

2 Q. One final question, staying with this
3 table.

4 The third last line of that chart talks
5 about total generation. Does that line take into
6 account the outages that would be required for the fuel
7 conversions of those stations that we have just talked
8 about?

9 [2:44 p.m.]

10 A. I think it does. And in some years
11 when we see controls being installed on a unit, but
12 nothing being reflected for that in the line above
13 that, the retubing planned outage, it might be because
14 the unit is having the controls installed in a period
15 other than the winter peak.

16 But I wouldn't mind to check that.

17 Q. So maybe I will just take your answer
18 that the total generation line does include outages;
19 but if not, if I am wrong, you could perhaps give me
20 the correct information?

21 A. Yes, that would be fine.

22 Q. Thank you.

23 I want to touch upon briefly the question
24 of exports or secondary sales. This was touched on
25 briefly the other day and I took it, I believe it was

1 Mr. Snelson, your evidence, that essentially Hydro has
2 not changed its position on exports since Panel 2; is
3 that correct?

4 MR. SNELSON: A. Yes, I believe that is
5 substantially correct.

6 Q. And is my understanding correct of
7 Mr. Barry's testimony that essentially Hydro's position
8 is that it will export power on an interruptable basis
9 when there is financial incentives to do, but that
10 Hydro will not cut domestic firm load in order to sell
11 to a secondary market; is that generally correct?

12 A. That is generally correct.

13 Q. Now, of course, the big difference I
14 put to you between that testimony of Mr. Barry back in
15 Panel 2 and the situation we face today, is the
16 increased urgency about managing the surplus. So my
17 question to you is that now that we have this new
18 reality of the surplus, why exports are secondary
19 sales, why that issue hasn't been looked into more
20 closely for this panel?

21 Really the question being, wouldn't
22 export sales be your No. 1 priority as a way to reduce
23 the surplus if that secondary market existed?

24 A. Well, there's a number of factors
25 there.

1 First of all, I don't think you would
2 recommend that we pursue export sales that would
3 require us to cut firm customers, which was the first
4 question you asked me. And I think that should still
5 apply, that we should not be making export sales that
6 require us to cut firm customers.

7 Q. My client would agree to that.

8 A. In a period of surplus capacity there
9 is an opportunity to make export sales and still be
10 able to supply our firm customers. I mean, that's what
11 surplus is, to a large degree.

12 And our policy always has been to sell
13 surplus capacity on a daily basis or a monthly basis or
14 whatever, if it is available, and if there is a market.
15 But there has to be a market at a high enough price
16 that it is above the incremental costs of producing
17 that for there to be an advantage to doing it, and
18 that's been our policy and it is still our policy.

19 Q. So I am correct when I say that given
20 the qualification you have just stated, there is
21 certainly no corporate, if you like, corporate
22 philosophical position that would steer Hydro away from
23 avoiding those kind of secondary sales if a market did
24 exist?

25 A. No. The only case in which we have

1 shied away from export sales, and that has been
2 consistent over a long period of time, is that we don't
3 want to get into export sales that would impinge upon
4 firm customers and we don't get into export sales that
5 would require us to build new capacity for export
6 sales.

7 Q. Do you know what the situation is in
8 the short term for markets like Michigan, New York, New
9 Jersey?

10 A. I'm not familiar with the short-term
11 situation. I do know that - and Mr. Dalziel has the
12 data - that for the last year we were approximately in
13 balance on purchases and sales, what we bought about
14 balanced what we sold; but, of course, in both
15 transactions would have been a net benefit to our
16 customers.

17 Q. So can I take it that in essence your
18 position is that at this point in time, Ontario Hydro
19 does not see any increased secondary sales market?

20 A. As I say, I am not familiar with the
21 market predictions. I am just quoting what has
22 actually happened over the last year.

23 Q. Would that, if there is a, if someone
24 has looked at that issue and there is some kind of, not
25 necessarily a report, but some kind of reporting of

1 that, would I be able to get a copy of that? Is there
2 anything different than your information.

3 A. The expectation for export sales is
4 part of documents such as the consistent energy set
5 that are produced by our operating branch on a regular
6 basis and part of the documents that are available
7 through processes such as the OEB and they are
8 generally available.

9 THE CHAIRMAN: But you are talking more
10 about long-term contracts, aren't you?

11 MR. RODGER: No. These were the sales on
12 an interruptible basis, but particularly for the time
13 where we were experiencing surplus in Ontario, in that
14 period.

15 Q. Now, I wonder if you could turn to
16 the exhibit that I handed out, Exhibit 1041. And I
17 have a couple of questions, I guess these are for Mr.
18 Shalaby, on demand management.

19 And the background to my question is, I
20 have reviewed the demand management figures in Hydro's
21 evidence for this panel and I am having difficulty
22 putting together the pieces regarding your demand
23 management targets for the next couple of years, and
24 last year, 1992/1993.

25 And I thought that the easiest way to

1 compare the information I had before me was to create a
2 chart. And what I have done here is taken data from
3 two sources, on the chart I have headed: Demand
4 Management Load Impacts.

5 I have taken information from Exhibit 796
6 Attachment C, page 36, Table 1.4.1; and perhaps we
7 should turn to that.

8 And in Attachment C, the chart where I
9 took the numbers from, was called: Comparison of
10 Cumulative Net Load Impact of Demand Side Management
11 and Load Displacement, DSP Update Versus Load Forecast
12 92.12.14.

13 And the numbers that I have taken are the
14 load shifting numbers for 1992 and 1993 and the energy
15 and efficiency improvement numbers from 1992 and 1993,
16 for the update --

17 THE CHAIRMAN: Sorry, Mr. Rodger, what
18 page of Attachment C are we on?

19 MR. RODGER: Page 36.

20 Q. And on page 36, under that Table
21 1.4.1, I have taken the figures from the short term,
22 under the column Short Term, for 1992 and 1993. And so
23 that is what I have done for the update and the load
24 forecast.

25 For the middle column on my chart I have

1 HR 21, and on the second page of my Exhibit 1041 I have
2 taken a page from Chapter 3 of Hydro Submission for HR
3 21, which was last April, and you can see under Table
4 3-1 on that page, they gave estimates of load impacts
5 for 1992 and 1993 for load shifting and for EEI. So I
6 have taken that data and I have also included it in
7 those charts.

8 Now, we know the update was released by
9 Hydro in January, '92. We know that HR 21 was
10 presented to the Energy Board in April 1992, and, of
11 course, the latest load forecast was December 1992.

12 Now, Mr. Shalaby, looking at the year
13 1992, you see that there is quite a substantial change
14 in the figures. And my question is, I thought all
15 these numbers here that we were dealing with were net
16 load impacts of demand side management and we just
17 cannot understand why there is such a change from the
18 update to HR 21 and the load forecast.

19 Now, I am not sure if I am comparing
20 apples and oranges, but could you explain this for me,
21 please, why there is such a big change in those
22 numbers?

23 MR. SHALABY: A. The numbers that are
24 taken from Attachment C, namely, the first line in your
25 tables with the source indicating the update.

1 Q. Yes.

2 A. The update and the line that has
3 indicated load forecast 92.12.14, those two numbers are
4 quantities that are comparable. And the reason for
5 that is that both of those are cumulative numbers,
6 meaning achievements of efficiency in load shifting
7 from '89 all the way to 1992, cumulative.

8 There are also quantities expressed as
9 net load impact, meaning the reduction on the Ontario
10 Hydro system. So they are calculated as to how much
11 less demand is placed on our system.

12 So the first line and the third line are
13 comparable quantities.

14 The middle line is a different, is a
15 different nomenclature altogether. First of all, it is
16 only for one year so it's a single snapshot, not
17 cumulative; and, secondly, it is what we call a
18 customer-connected load or measured in terms of impact
19 on customer rather than impact on the system.

20 So the middle line really doesn't belong
21 on the table for comparability purposes.

22 So that's the apples and oranges story.

23 Now, why the numbers changed, I guess we
24 have spent a considerable amount of time - Mr. Burke
25 explained the change in projection in the December load

1 forecast from the update. That explains the
2 differences between line 3 and line 1; and, as I say,
3 the middle line is a snapshot for 1992 customer
4 connect.

5 Q. So would I be correct, Mr. Shalaby,
6 that when we are looking at Ontario Hydro's longer-term
7 targets, for example, to the year 2000 to the year
8 2014, the cumulative of numbers on the first line and
9 third line of my chart, those are really the important
10 ones that we should look to to see how Hydro is doing
11 in terms of reaching those targets, those long-term
12 targets?

13 A. That's a good indication of how we
14 have done over the last several years, and the current
15 year included. They are in some way indicative of how
16 well we are doing towards reaching the target, yes.

17 Q. Now, do I understand it correctly
18 that in Exhibit 796, when you are looking at your
19 demand management penetration rates, you are using your
20 penetration rate based on the 1990 load forecast; is
21 that correct?

22 A. Mr. Burke indicated that estimates of
23 penetration rates are similar or identical in both of
24 those forecasts, yes.

25 Q. And I believe Mr. Burke also said

1 that based on the actual results achieved to date,
2 there is no reason to go back and re-estimate the
3 penetration rate; is that right?

4 A. The words here may say that, but I
5 don't know. Mr. Burke tells me he doesn't remember
6 saying that.

7 MR. BURKE: No, I don't think that's what
8 I said. I think I said simply that they had not been
9 re-estimated.

10 MR. RODGER: Maybe I read that in the
11 exhibit. Just bear with me for a minute.

12 THE CHAIRMAN: I think anyway, Mr.
13 Rodger, we are getting close to time, we had better
14 stop, if that is all right with you?

15 MR. RODGER: That is fine.

16 THE CHAIRMAN: We can clear that up on
17 Monday morning.

18 MR. RODGER: I expect to be less than an
19 hour on Monday morning, yes.

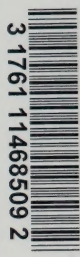
20 THE CHAIRMAN: We will adjourn until
21 Monday morning; nine o'clock, Monday, January 18th.
22 Nine o'clock.

23 THE REGISTRAR: This hearing will adjourn
24 until nine o'clock Monday morning next.

25

1
2 ---Whereupon the hearing was adjourned at 2:59 p.m., to
3 be reconvened on Monday, January 18th, 1993, at
4 9:00 a.m.
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